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ISSUE 161 JUNE 2015

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Experts from the mo-cap space and top triple-A developers discuss the latest technology in the sector and the best options open to studios looking to implement it into their games

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CD PROJEKT
Making The Witcher 3

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EDITORIAL

MODDED BEHAVIOUR

How ridiculous is it that paying for a game is so controversial?

Valve's attempts at monetising user-generated content came under heavy scrutiny when it tried to implement a new system of paid-for mods on the Steam Workshop for Bethesda's *Skyrim*.

Granted, the royalty shares were way off; Valve taking 30 per cent and Bethesda another 45 per cent didn't really sit right with anyone, and rightfully so.

Content creators, who are adding extra value to your game, should get the lion's share of revenue. Of course, they can't expect it all their way. They are building their money stream off the back of the original game which could have cost millions to make, by a company that is using Valve's store to sell their product. But the debut attempt missed the mark completely.

Paid-for mods will be back though, and they should be. I have bought games based on their modded experiences in the past, including *ArmA II* for *DayZ* and *Crusader Kings II* so I could play it as a *Game of Thrones* strategy title.

These developers are just as passionate as anyone else. And they often work hard, and all for free. If they want to try and make some money, so what? People have become ingrained with the mind-set that mods should be free, because, well, they've always been that way.

If people don't like it, they could always do something crazy, like not buy it...

Craig Chapple
cchapple@nbmedia.com

Develop Live heads to Pinewood Studios this October

Atomhawk and Carbon Digital headlines a line-up of experts discussing the crossover between games development and movie production ● Conference returns on October 7th, tickets and sponsorship deals now available ● Call for speakers opens

As well as a host of key talks, those who purchase VIP tickets will also get the chance to tour Pinewood's famous facilities

FOLLOWING ITS SUCCESSFUL debut last year, Develop Live returns this October with a blockbuster new conference.

This year, the event will be hosted by Pinewood Studios, the world famous movie production hub known for being home to hits such as *Avengers: Age of Ultron* and the *James Bond* series. Pinewood has also been crossing over into the games industry, working on titles such as *Alien: Isolation*, *Fable Legends* and the *Total War* series.

Develop Live at Pinewood will be held on October 7th in the studio's impressive John Barry Theatre, where 120 attendees will enjoy a day filled with talks on the various crossovers between games development and movie production.

The programme is still being compiled, but confirmed highlights so far include: design firm Atomhawk, which has produced concept art for multiple Marvel movies; VFX agency Carbon Digital, creators of multiple TV and game trailers; and the audio experts at Pinewood Studios.

Pinewood recently established a new mo-cap partnership with Centroid. The firm has worked on movies such as *SPECTRE* and *Guardians of the Galaxy*, plus multiple games, as video games are increasingly using motion capture tech for in-game movement, as well as for their cinematic sequences.

VIP tickets to the event will also include an exclusive tour of key Pinewood facilities.

> ***"There's nowhere better to have this discussion than at Pinewood Studios."***
>
> Michael French, Develop

Standard tickets without the tour will be available too.

Full details on pricing and availability will be found at **www.develop-live.com** from June 8th, when registration opens.

We are also opening a call for speakers. If you have something to say that fits within this year's topic, email **developlive@nbmedia.com** to find out how to submit your proposal.

Develop Live is the only conference organised by the team behind *Develop*'s monthly print magazine and website, with all on-stage content curated by the editorial team.

"For this year's Develop Live, we wanted to explore the long-analysed theme of where games and film may intersect," said *Develop* publisher Michael French.

"The experts already on board have worked across both fields, making it clear this is still a hot topic. And there's nowhere better to have this discussion than at Pinewood Studios, one of the world's most iconic places for making movies and digital entertainment."

Sponsorship packages are available that offer high-profile branding and involvement in this blockbuster event - contact Charlotte Nangle via ***cnangle@nbmedia.com*** *for more information on booking your place and how to get involved.* ■

// MEANWHILE ON DEVELOP-ONLINE.NET

How Space Ape and Rhianna Pratchett are shaking up mobile narrative
deve1op.net/1AKHD2h

'Sod 'em, we'll do it anyway': How Solarix survived a failed Kickstarter
deve1op.net/1Eck43G

Interview: Creative England's Karl Hilton on his mission to support start-ups
deve1op.net/1JCSAeh

Jade Raymond: 'Treat your team like your players'

Ex-Ubisoft Toronto MD says studios need to find better ways to engage and retain talent

by James Batchelor

PLAYER ENGAGEMENT AND retention are frequently used buzzwords at the moment, but former Ubisoft Toronto MD Jade Raymond believes developers are neglecting these areas when it comes to their staff.

Speaking to *Develop*, the woman who helped bring *Assassin's Creed* and *Splinter Cell: Blacklist* to market discussed the irony that companies who pride themselves on retaining a loyal audience could be doing more to support and develop their creative teams.

"Every company has a certain set of rules as to why you get a raise, what's valued, why you get promotions, and so on," she told *Develop*. "The thing that has struck me is sometimes the company's stated objective is not in line with the practices and structures in place.

"I find it interesting from a games design and developer perspective, because we're experts at engaging players and keeping them motivated. That's part of our job – and yet we don't apply the same knowledge to the way the companies are structured and the processes they have.

"I'm definitely not advocating the gamification of the workplace. But we have some things to work through in the games industry, in terms of ways we can improve our management practices and keep our best talented people engaged and motivated. And I think we have the toolset already in the same toolbox that we use as developers."

Pressed for an example, Raymond pointed to the games – particularly MMOs – that have a "long-term, almost impossible objective", such as *EverQuest*'s bosses and *Destiny*'s raids. These give players of all skill levels something to strive for, and the producer feels this is something studios could benefit from.

"There's a parallel with these things and with jobs," she said. "People want to understand their career path, they want to know there's growth potential where they are.

"That doesn't mean that everyone has to aspire to be the president of the company – it actually means the opposite, because that should not be the only thing people strive for. People have to know there are ways for them to continue to evolve and improve themselves, and be engaged for the long-term at their company."

> ***"People want to understand their career path, they want to know there's growth potential where they are."***
>
> Jade Raymond

NURTURE CREATIVITY

A crucial point Raymond wished to emphasise was encouraging a "culture of transparency", where staff feel that they are able to bring their ideas to the table, and that their opinions are valued.

"Make sure your studio is a place where people feel like being creative means their ideas will go somewhere – not just left in the suggestions box," she said.

"There's not some special person like the producer, like myself, who's the only one who can have good creative ideas for what's going to make your game better. We have a lot of talent throughout our teams, and a good idea can come from anywhere."

Branching out from your main project can be instrumental in identifying that talent, Raymond said, citing an instance where the *Assassin's Creed III* team took a two-week break in the middle of production to prototype new ideas.

"When you do something like this, you get to see people display skills that you might not know they have," said Raymond. "We did a few game jams at Ubisoft Toronto, and discovered that people we thought were just hardcore gamers actually had good ideas for children's games – some of them had just become parents and played a lot of games with their kids. That helps you know who the right people are when it comes to trying new projects that are in different areas."

The ex-Ubisoft producer also touched on the need to encourage more women to consider careers in games.

"The great thing is there are more and more young women playing these titles," she said. "Games have become more mass market, so more people are becoming exposed to them and therefore consider it as a career opportunity.

"What also helps is having examples of women in the industry who are out there and talking about what they do – and not just as examples as women, but as examples of their role and what they actually do. This will help young girls see that there are women working in games and doing well, and it won't feel like they'll be the only ones if they join the industry or that there aren't enough roles open for them." ■

DEVELOP DIARY

Your complete games development events calendar for the months ahead

AT A GLANCE

JUNE 12TH
LEGO Jurassic World
Return to the classic movie you loved as a kid, and its not-so-good sequels.

JUNE 14TH
World Blood Donor Day
Do something amazing today. And give blood. But not like in *Bloodborne*.

JUNE 18TH
International Panic Day
Sorry, no time to write a witty description. PANIC.

JUNE 21ST
International Yoga Day
Okay, thank goodness. Time to relax after the sheer panic of Thursday.

JUNE 23RD
Batman: Arkham Knight
Face off against a band of super villains in Rocksteady's last Batman title.

JUNE 30TH
International day of friendship
Reconnect by liking a Facebook status.

DIARY DATES

E3 2015
June 16th to 18th
Los Angeles, USA
www.e3expo.com

JUNE

THE DEVELOP QUIZ
June 10th
London
cnangle@nbmedia.com

WALES GAMES DEVELOPMENT SHOW
June 19th
Cardiff, Wales
www.walesgamesdevshow.org

UNITE EUROPE
June 24th to 25th
Amsterdam, Netherlands
www.unity3d.com/events

BRAINS EDEN
June 26th to 29th
Cambridge, USA
www.brainseden.net

JULY

DEVELOP: BRIGHTON 2015
July 14th to 16th
Brighton, UK
www.developconference.com

DEVELOP AWARDS
July 15th
Brighton, UK
www.developawards.com

QUAKECON 2015
July 23rd to 26th
Texas, USA
www.quakecon.org

NUCL.AI
July 20th to 22nd
Vienna, Austria
www.nucl.ai

EVENT SPOTLIGHT

DEVELOP QUIZ 2015

THE DEVELOP QUIZ returns once again to the Sway in London on June 10th.

The event is for anyone in the games development industry. You can bring along a team with a maximum of five people, and you'll compete against some of the finest minds in games.

Oh, and there's a free bar and food for all five team members. You'll also be competing for the coveted Develop Quiz trophy, and just as important, bragging rights as the brainiest studio in London.

The cost of entering a team for the Develop Quiz is £249. To book a place for you and your team, contact our senior events manager Kathryn Humphrey at **khumphrey@nbmedia.com** or visit **intent-events.com/events/event_details/64** to book your place directly.

"Bring along a team of five people, and compete against some of the finest minds in the industry."

Are you an indie looking for more team members? Fear not! Let the *Develop* team know and we'll make a shout out to find you extra team members so you can book a table and join the epic clash of minds. ■

After sponsorship opportunities for the Develop Quiz? Email Charlotte Nangle at cnangle@nbmedia.com for more information.

COMING SOON

DEVELOP #162
JULY 2015

- Audio Special: The top tools and tech to help ensure your game sounds great
- Develop: Brighton 2015 preview

DEVELOP #163
AUGUST 2015

- Develop Awards: A round-up of all the winners from the night
- Your guide to Gamescom
- A look ahead to this year's GDC Europe

For editorial enquiries, please contact jbatchelor@nbmedia.com
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//COMMENT: BUSINESS

User generated content is the future

Joost van Dreunen discusses how developers can embrace mods, YouTube videos and more

Skyrim is just one of the many titles that have become a showcase of how innovative consumers can be when creating their own content

HERE'S AN IDEA: interactive entertainment conditions us to make decisions and observe the outcome of our actions.

Unsurprisingly, people have easily spent as much time trying to break games – cheating, for example – as they have playing them. So it's no surprise that a growing part of the gaming audience has started tinkering with existing games, resulting in an ever-expanding inventory of home-made modifications, add-ons, fan-made levels and so on.

As far as entertainment audiences go, most die-hard fans will start creating additional storylines and characters based on an existing TV show, film, book or other fictional universe. It is in the nature of people to take ownership of the things they enjoy and to want to express themselves through it.

For the longest time, however, media companies have regarded these hyperactive fans as outliers. In an era when appealing to the largest common denominator was key to an entertainment firm's strategy, the super-fans were considered fringe customers.

That is changing.

One of the great affordances of digitalisation is that, unlike physical media imprinted on a disc, even average people can gain access to the source code. Never before has it been easier to download a map editor, spend a few hours creating a new level and uploading it to an online forum for distribution and feedback.

Already we see an increasing number of people looking to express themselves through the games they enjoy. Gaming video content is the No.1 category on digital channels like YouTube, Twitch and Azubu. Fans put an increasing amount of editing and effort into the production of videos that consist of walkthroughs, cosplay, reviews, how to guides, glitches and gags.

A driving force behind all this, of course, is that humans are a species that likes to share. At the very core of playing sits our inherent need to exchange ideas and experiences.

LETTING USERS IN

Where things get tricky is the response of the games industry so far.

In late April, we saw Valve's initiative to professionalise mod creators come and, subsequently, go within a matter of days. The social currency of the otherwise revered Gabe Newell could not buy him out of this one and, following a deluge of criticism, Valve yielded and removed the payment option.

Just a few weeks earlier, Nintendo came up with the idea to claim a cut of the advertising revenue earned by YouTubers who review or otherwise use the publisher's well-known titles. This, too, was not appreciated.

> ***"Some of the most popular games today surfaced from the creative effort made by gamers themselves."***

Users, however, are an incredible source of innovative content, both in volume and quality. Since 2011, *Skyrim* has seen the arrival of a whopping 24,000 mods. Similarly, *Minecraft* has generated thousands of hours of video content that have allowed it to become the phenomenon it is today. Even Take-Two, a publisher that generally takes on the role of being a fast follower rather than an early adopter when it comes to industry changes, was quick to announce the ability to create missions and challenges in *Grand Theft Auto V*.

And it is hard to not mention either *League of Legends* or *DOTA 2* in this context. With 88m and 11m monthly active users respectively, both of these games emerged from mods created by fans. Some of the most popular games today were not imagined in some secret room of established game designers, but surfaced from the creative effort made by gamers themselves.

Granted, not everything that is user-generated is of passable quality, but the enjoyment lies as much in its production as it does in its consumption. If people want to make a few crappy videos around their favorite game or mess about with a map editor, let them. They love your game and they're soaking it up.

It's odd, though, that there currently exists no agreement on who can charge a fee for the content. In the past, movie companies and intellectual property owners have fiercely defended their assets, arguing that they are the only legal beneficiaries. But if history tells us anything it is that the games industry does not follow the path of other entertainment segments.

So here's another idea: if you love something, set it free. Don't try to get clever and hog the bulk of earnings. Let people enjoy themselves and freely explore the universe you've created for them. And, I promise, it will come back to you. ■

Joost van Dreunen is co-founder and CEO of SuperData Research, provider of relevant market data and insight on digital games and playable media
www.superdataresearch.com

//COMMENT: INDIE

Gold rush or fool's gold?

Debbie Bestwick discusses dead Spanish philosophers and the future of indie games

Developed by Tiger & Squid and Team17's own internal studio, the upcoming Beyond Eyes (main) is to be a baseline for the company's titles going forward

THIS MONTH WE'VE spent a lot of time looking at potential titles for our 2016/17 portfolio and a common question keeps coming up: "Where will the market be in a year to 18 months' time?"

The industry is cyclical by nature, not just in terms of hardware generations but also software. The Atari crash became a boom for the Amiga and ST, and then a slump as the SNES and Mega Drive took over and many devs were unable to compete against first parties.

Things seemed to boom again with PlayStation, then PS2 and Xbox, but all too soon we saw another slump as budgets skyrocketed and the audiences didn't. After that, 'casual' PC games were touted as the next big thing. When that didn't work out, it was mobile, then free-to-play. Rinse, repeat.

Which brings me to our dead Spanish philosopher, George Santayana, who said: "Those who cannot remember the past are condemned to repeat it."

But what does he know about indie development? Steam is going great guns, the consoles are open to self-publishing, and have you seen how many copies <insert hot indie title> is selling? What could go wrong?

DARK CLOUDS ON THE HORIZON

Anybody can make a game, but a healthy market can only sustain a certain number of titles per year. Once we reach that threshold, titles are forced into competition for attention, invariably by price-slashing. As the gold rush mentality takes hold, lower quality developers are sucked in, overall quality goes down, and consumers look elsewhere for entertainment.

There's no denying that PS+ and Games With Gold – usually padded out with Indie Games – offer great value to gamers but it's not helping the indie cause as a whole. I think it gives a perception of indie games as being of little-or-no value. Likewise on PC, we see an expectation of titles having their prices cut quickly – not helped by some titles having first month "sales" of up to 70 per cent.

At some point in the next year, the platform holders will announce Greatest Hits programmes and so the £10 to £15 indie games will no longer have a price difference to hide behind. A 4m-selling IP against your 2D pixel art platformer? That's not a fair fight.

And one thing that no hardware or software cycle can ignore is the constant upward pressure on production values, and the increase in team size and budget.

So, what's the solution? Well here's a few tips for the future:

Double down on your creativity. The one advantage indie games have is their ability to take risks that publishers would never take. If you're making a game that is just like someone else's, then you're dead before you even begin.

A possible solution is for indies to form short-term alliances. Banding together for individual projects is common in the film industry and would allow us to take on more ambitious titles. Or work with a partner who can bring additional resources – whether it be development, marketing, PR, anything.

Embrace change, while learning from the past. Change is what's made your business viable, but don't assume the indie revolution is over. As our philosopher says, learn from the past, apply it to the present and build a sustainable future.

These are all lessons we've put into place, as can be seen in *Beyond Eyes*: an innovative concept backed with a commitment to production values, and made as collaboration between Tiger & Squid and our own internal studio. For us, Beyond Eyes is a baseline for all our titles going forward.

So, is the indie goldrush over? A little bit yes, a little bit no. For those who take what they have, learn from the past, build on their strengths and move forward in the right direction, there's a bright future. For those who can't, I'll defer to Senor Santanaya. ■

Debbie Bestwick is CEO and one of the founding members of Team17.
She pioneered the company's leap into digital publishing.
www.team17.com

//EXTRA CONTENT ONLINE

"If you're looking to get into the games industry but are worried because you couldn't grok high school algebra, don't be (just yet)."

Math – What is it good for?
Alex Zeitler, Guerilla Tea
deve1op.net/1lLnmQG

"What we found was that each of the writers involved had fallen into the industry almost by accident; none had received any formal training."

The journey of the games writer
Luke Kelly, PhD student
deve1op.net/1HsDbdk

"Make it clear what you value, aim specifically for those studios that do the same and tell them why."

Five ways to help you get a job in the games industry
Guy DeRosa, Skillsearch
deve1op.net/1FDVRcC

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Environment Artists – Contract
Graduate Environment Artists

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Rendering Engineer - Contract
Senior Systems Engineer
Senior Tools Engineer
Graduate Engineers

Production
Producer

Design
Game Designer
Level Designer

Audio
Sound Designer – Contract

BETA

DEVELOPMENT FEATURES, INTERVIEWS, ESSAYS & MORE

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A look back on the success stories from past game jams at the Cambridge event
P16

SIGGRAPH
How the upcoming graphics conference is increasing its focus on games development
P17

THE LUCKY INDIE?
Maia developer Simon Roth dispels the myth that indie successes are down to luck
P20

The wild road to **The Witcher 3**

CD Projekt Red spent 3.5 years developing Wild Hunt, but the company's journey here has been 20 years in the making. **Craig Chapple** speaks with co-founder Marcin Iwiński on steadily building its business and why it remains staunchly independent

THE WITCHER 3: Wild Hunt is a rare and unique beast in today's game industry. It's an enormous, open-world fantasy RPG – the kind of genre we've seen countless times before – but it's been built by the entirely independent Polish studio CD Projekt.

The company was formed in 1994, and initially started as a publisher and distributor of games, and also provided extra services including localisation, PR and marketing. But its founders' ambition was always to get into games development.

AN EYE ON THE FUTURE

"I co-founded the company with my school friend Michał Kiciński right out of high school," co-founder and joint-CEO Marcin Iwiński tells *Develop*.

"Games were always our passion, and together with Michał we were skipping school to play on our Amigas and then PCs with VGA cards. From the very beginning, we wanted to develop our own game, but we had neither the capital, nor the knowledge. However, we saw another opportunity: we were the first to import games on CD-ROMs – breakthrough new media back in the day. Do not forget that one CD-ROM was able to hold the data of a couple hundred floppy discs."

> ***"We spent two years learning how to organise production and how to effectively run a studio."***
>
> Marcin Iwiński, CD Projekt

The money raised from this business was eventually enough to open its CD Projekt Red subsidiary in 2002, focused on development, and to invest in its first game, *The Witcher*, a project built on BioWare's Aurora engine for the PC only. Iwiński says that he had

Although its most ambitious project to date, The Witcher 3: Wild Hunt took CD Projekt Red three and a half years to develop, the same time it took to make The Witcher 2

More than 250 people worked on The Witcher 3: Wild Hunt at its studios during the latter stages of development

practically no experience in development, but knew how to run a business. This still led to some problems however before *The Witcher*'s release in 2007.

"We spent almost two years learning how to organise production and how to effectively run a studio," explains Iwiński. "It was a much slower start than it should have been and that's why *The Witcher* took us a long five years to finish."

CD Projekt was able to fund around 80 per cent of the original title, but negotiated a deal with publisher Atari to get the game over the line. Iwiński says the studio retained creative control, the IP and rights in Eastern Europe, where it handled the release directly. He adds that this was the first step to self-publishing, and ultimately, full independence. And although this deal was necessary for the company, it taught the studio a good lesson.

"It was always incredibly hard for us to accept when somebody was telling us to do something and we were not convinced that it was the right way," says Iwiński.

"I think the first publishing deal, the only one where we did not have the final say on all the publishing aspects like marketing, PR or what the box looked like, taught us a good lesson. We clearly understood back then, that if we want to deliver truly amazing gaming experiences, we have to control the full process and not only the development decisions.

"How you present the game, what is on the box, what the communication with gamers is shaped like, do we charge for DLCs or not, does our game represent the best value for money. These theoretically might not be the most important things on a developer's mind, but if you don't have a vision and act on it, somebody else will and then you might not like it. These days, with information and

opinions travelling ultra fast all around the world, your game is what gamers think of it."

For The *Witcher 2: Assassins of Kings*, the studio spent less time, three and a half years, developing the title while also building up its own technology, the RedEngine. Although it co-published the game on PC, it completely self-published the game on Xbox 360, signing up with various distribution partners.

GOING FOR BROKE

From here, the studio had regained full control of the publishing process, as well as of the revenue stream, which meant it could now self-fund *The Witcher 3: Wild Hunt*, by far its most ambitious title to date.

The project started with 150 employees working on it, a number that ramped up to more than 250 staff by the end, including an in-house QA team – although some of this was also outsourced.

Like *The Witcher 2*, *Wild Hunt* took 3.5 years to develop. Iwiński won't reveal the costs of such an endeavour, but paying the salaries of such a large team for nearly four years suggests the investment in the RPG was significant.

"On top of it, we self-funded a big part of the marketing," he says. "Most of the costs are on us, but parts – especially the marketing and costs of goods – are up-fronted by our distribution partners. Again, as previously mentioned, our vision of doing business way back from the times of *The Witcher 1* is paying back. We can self-publish only thanks to the fact that we had full control of the revenue of our previous titles – especially *The Witcher 2* – and the majority of it was coming directly to us and not to somebody else."

The risks of being independent and developing such a large-scale title, with a team of hundreds, are clear, particularly when the game has to be a success and there isn't a pipeline of other games to provide a lifeboat should things go awry.

To help hedge its bets, building up anticipation was crucial to give *Wild Hunt* its best chance, particularly when rivals such as Bethesda, Rockstar, Ubisoft and even independents like Avalanche have their own open-world games ready to take up a player's time and money.

To this end, Iwiński says there are two areas of competition, first and foremost

being: do you have the next big thing? And is it something that will wow the public? Iwiński explains that to this end, it's important to stay focused on what you plan to deliver and stick to your team's strengths.

"Yes, we are very ambitious, but – as mentioned before – we started one step at a time," he says. "The *Witcher* being PC-only on licensed tech, *The Witcher 2* launching first on PC and then on Xbox 360 – both games were heavily non-linear, but still with a closed chapter structure. By that time we knew pretty well how to develop good story-driven RPGs and only then we applied this experience, but this time in an open-world. Rome wasn't built in a day. In our case, it took over ten years."

THE SWEET SPOT

Finding a suitable release date was also key. Launching at the wrong time and alongside another triple-A blockbuster release could mean attention on your title is lost, and anticipation could dwindle. Finding that sweet spot can significantly increase the chances of success and sales, a factor made even more difficult by the two delays *Wild Hunt* suffered during development as the team aimed to polish the game for a smooth launch.

"We looked at the release calendar and knew that we would not have to compete for gamers' time and budget with other major releases," explains Iwiński. "We probably could, but if the competition is distant from your window, you can get more coverage and attention both in media, as well as in stores.

"Looking at more direct competition, by the time we are out, gamers should have completed the last *Dragon Age* and the more hardcore gamers should at least be done with the first pass through of *Bloodborne*."

The delays appeared to have worked out: *Wild Hunt* surpassed one million pre-orders sales and it's the biggest UK launch of 2015 so far. The confidence also gained from the postponed release by a wary public burned by launch bugs in recent times is likely to have also been a boon – and at launch there do not seem to be many serious issues affecting gameplay.

Iwiński recognises that, due to the scale and complexity of games these days, exact planning of game development time, including QA, is still "mission impossible", but there are ways to alleviate potential issues, such as it has enacted with *The Witcher 3*.

"Looking at our own experience, I would say: set hard deadlines, push for making it happen like there's no tomorrow, but do not ship until you are convinced the game is ready," he states.

"It is much easier said than done, as there are lots of external factors like running out of financing, having a publisher pushing you to have it shipped, or hitting your perfect launch window. We were working really hard for the last ten years to have the freedom of deciding when we ship our game and if it is ready or not, and we used this freedom.

"We used it twice, and each time it was a really tough decision to push it back, but gamers don't care about buggy games shipped on time. They will only remember the very best games they played, and that's exactly how you build your studio's reputation. Besides, if your team of 200-plus people was working really hard for the last three years, why not give them an additional three-to-six months if this can mean a world of a difference? We could and we did."

Now that *The Witcher 3: Wild Hunt* is out, CD Projekt Red is looking to the future with new sci-fi RPG *Cyberpunk 2077*. With such a solid footing in triple-A development, and its own digital storefront in GOG.com, launched in 2008, Iwiński expresses just how important the studio's roots are. Despite admitting to being approached by companies for acquisition on a "regular basis", the developer has no plans of losing its independence or development ethos, despite the risks of open-world triple-A and the increasing costs of making games.

"Due to the nature of constant increase of processing and graphical power, we will have to grow in order to be able to deliver true triple-A gaming experiences," he says, before concluding: "Having said that, we don't have any imminent plans to suddenly annualise our titles or build a multi-structure studio all around the world. We have to remain focused as, ultimately, we are as good as our last game, and I have no doubt that gamers will be the first to remind us about it." ■

CD Projekt co-founder and joint-CEO Marcin Iwiński established CD Projekt in 1994, moving into games development in 2002 with the opening of CD Projekt Red

> ***"It was a really tough decision to push back The Witcher 3: Wild Hunt, but gamers don't care about buggy games shipped on time."***
>
> Marcin Iwiński, CD Projekt

HUNTING FOR FUN

CREATING A VAST open-world is all good when players can traverse the landscape and visit the unique lands the developer has designed, but what about the people that inhabit them? And are the quests and side-quests built within these locales actually fun and meaningful?

Ensuring each objective is as interesting as the last can be difficult, particularly when variety can be depleted quickly when it comes to the 50th side-mission after 50 hours of gameplay. To this end, CD Projekt tried to tie in each side-quest with the main storyline to help make each quest more impactual from start to finish.

"Each of the characters in our game has their own agenda, motivations and background story – it all links and crosses with the other characters and you, the main hero," explains studio co-founder and joint-CEO Marcin Iwiński.

"While playing, you might realise that an innocent side-quest links directly to an important part of the main story plot and, at the same time, another side-quest might just be a silly 'hey, help out with this granny with her missing frying pan' assignment, but even here you will find a trace or hint about the big, important things happening in the world.

"How do we do it? We meticulously plan, write and implement in our quest editor and then QA and iterate until we reach the effect we planned for. Obviously it takes a great amount of time and a great team, but that's why gamers play our games."

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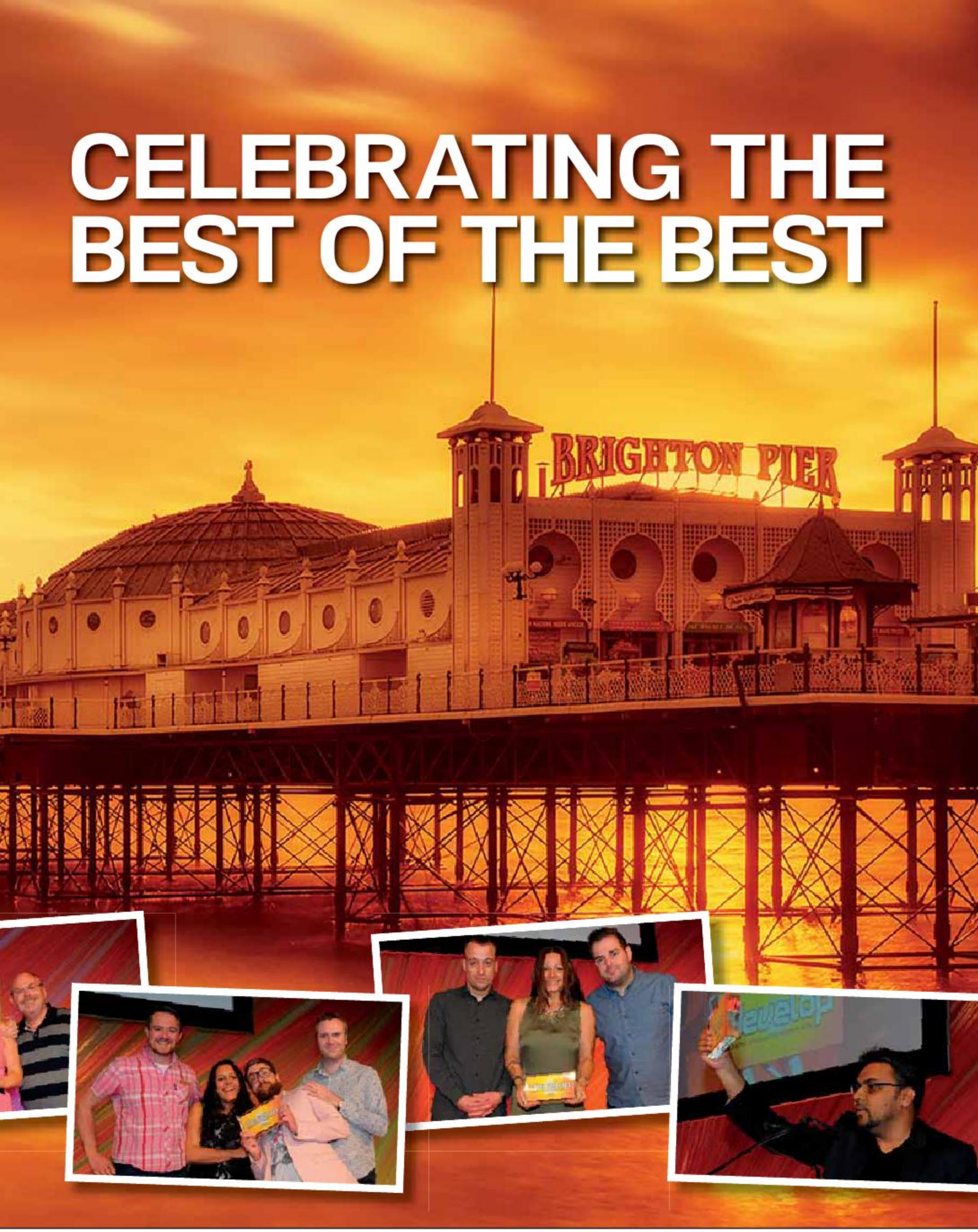

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Brains Eden: Where are they now?

The organisers of the popular gaming festival look at past jammers and where their careers have taken them since participating in Brains Eden

Above: Former Brains Eden participant Dan Moody won an internship at ARM

Main: Placeholder Games entered Brains Eden 2012 with Upsy Down (right) and two members now work at Guerrilla Games

BRAINS EDEN, PRODUCED by Creative Front, gives young games creators access to leading games studios based in Cambridge. Hosted at Anglia Ruskin University, the festival is back for its seventh year on June 26th, when 30 teams from across the UK and Europe will descend on the city.

Past competitors Joe Kinglake and Luke Botham are now full-time employees at Guerrilla Games Amsterdam, thanks to the opportunities the festival opened up for them.

> ***"The skills you acquire at Brains Eden are invaluable to starting your career."***
>
> Joe Kinglake, Guerrilla Games

In 2012, Joe and Luke – along with team members of Placeholder Games – were given the theme 'Up' and created the game *Upsy Down*, a puzzle platform game where you play as a small balloon named Upsy. The team designed the game with a staggering 31 levels in the 48-hour games jam.

The team received the runners-up prize of a tour around local studios Guerrilla Cambridge, Geomerics (which is now part of ARM) and Jagex, and were offered the opportunity to apply for intern positions with Guerrilla Cambridge.

Botham says: "Naturally we jumped at the opportunity and both Joe and I succeeded in getting design placements working on *Killzone: Mercenary* – a dream come true."

Having finished their placements in Cambridge and returned to their studies, both Luke and Joe were approached to do another internship with Guerrilla – this time in Amsterdam. This led to the full-time design positions they are currently holding.

Mark Green, senior producer at Guerrilla Cambridge, says: "We get some amazingly strong new fresh talent through Brains Eden. A number of the universities attending the festival are at the very pinnacle of producing talented graduates, both technically and artistically highly skilled, and we're always on the lookout for the best."

JAMMING INTO 2015

The 48-hour game jam will run from Friday June 26th to Monday June 29th and is supported by Guerrilla Cambridge, PlayStation First, ARM, Unity and Jagex. Focusing on new game creation using cutting-edge technology, the festival also provides the rare opportunity for the budding games creators to come face-to-face with leading industry experts, resulting in internships and employment opportunities.

"Brains Eden is a beautiful mix of fun and hard graft, a lot like Guerrilla Cambridge and Amsterdam, there are always people on hand to help and give advice which is crucial," Botham says. "The mentors understand the stress of creating a game and the time constraints involved."

Last year, Southampton Solent student Dan Moody won an internship with ARM.

"I had just finished my first year of university when I took part in Brains Eden, so I wasn't as focused on the industry as other participants because I knew I would be returning to study," he explains.

"I thought it was really interesting that not only gaming companies were present at the festival, but also electronics giant ARM. It's awesome that you can come face-to-face with the industry and some of the gaming legends you aspire to one day be like."

Brains Eden opens doors for all participating jammers that they would not otherwise get. The festival now has a strong alumni of past jammers who are in full-time paid work as a direct result and are invited back to become the next generation Brains Eden mentors.

Kinglake concludes: "Brains Eden is a fantastic event for aspiring developers, not only does it provide a great networking opportunity to meet other developers in the games industry, but it is a perfect way for developers to practice, improve and showcase their skills. The skills you acquire and the people you will meet at Brains Eden are invaluable in starting your career in gaming. It is a great way to show not only your technical and creative abilities, but your passion for video games development." ■

*Visit **www.brainseden.net** for more information about this year's event.*

Games, graphics and more

SIGGRAPH returns to Los Angeles this August, and the graphics conference is increasing its focus on games development. Games chair **Mike Hardison** offers a look at what attendees can expect from this year's event

SIGGRAPH games chair Mike Hardison (above) says the event offers a knowledge pool of computer graphics talent for developers to consult with and hire from

Games will have a bigger presence than ever at SIGGRAPH 2015, with speakers from DICE, Activision Blizzard, Eidos Montreal, Guerrilla Games and Avalanche Studios

What role do games play at SIGGRAPH? How has this changed over the years?
SIGGRAPH is about innovation in computer graphics and interactive techniques. Games, and the technology behind them, have a large footprint in both of these areas of interest. Not only does games technology touch on a broad spectrum of industries, it can also offer a new perspective and fresh approach to computer graphics.

Additionally, emerging technology such as virtual and augmented reality are using games as a catalyst to introduce themselves to the consumer market. This makes games a perfect fit for SIGGRAPH's theme of merging technologies, as is reflected in the increasing and broad presence of games-based content.

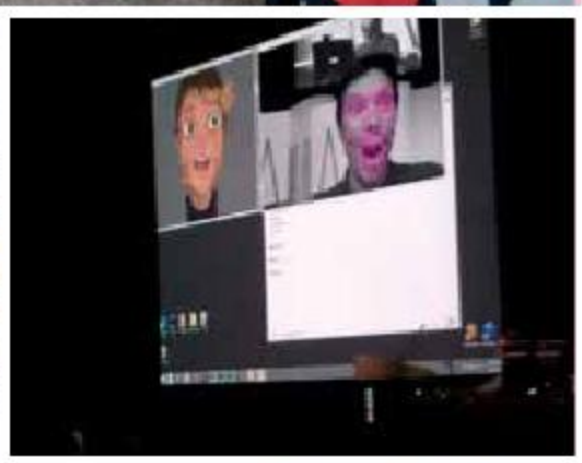
What are the key talking points in terms of games at this year's event?
SIGGRAPH has gathered a diverse collection of game-related content this year. We have a top-tier curation of indie and triple-A games that will host quality educational content through courses covering premiere technological advances in real-time rendering, shading, VR applications and high-quality mobile devices.

There will be talks where attendees can learn about how some of the best games of 2015 were brought together. In addition, attendees will have an insight on upcoming games and how they leveraged the latest tech and production techniques to create their worlds. Speakers include Ready at Dawn, EA DICE, Activision Blizzard, Eidos Montreal, Guerrilla Games and Avalanche Studios.

There will also be panels hosted by industry innovators discussing VR production for film and games, and the convergence in film and games technologies. The Computer Animation Festival will feature some of the year's best game trailers and shorts.

What support do you have from the games industry?
This year, the games presence is stronger than ever. EA, Sony, Microsoft, Activision and Square Enix are representing their work and lending their support. We also have a growing indie presence with some innovative companies like State of Play, Q Games and the developers of Jonathan Blow's *The Witness*. Finally, companies like Oculus Rift, Unity and Epic are offering their support with venues like the VR Village.

Why should games developers attend? What can they learn?
Attendees have the opportunity to interact with some of the top graphics minds both inside and outside the games industry. Content presented at SIGGRAPH is often relevant to people in the sector. A prime example is the convergence between games and film as both continue to push the boundaries of real-time rendering.



SIGGRAPH also holds a knowledgeable pool of computer graphics talent for devs to consult with and hire from. Plus, you have the breadth of the graphics industry in one place, from hardware manufacturers to graphics tools developers. There's a lot to see.

> ***"This year, the games presence at SIGGRAPH is stronger than ever."***
> Mike Hardison, SIGGRAPH

SIGGRAPH is also the only place where games, research, film and makers all collide to help invent future technologies. From both an artistic and technological perspective, one does not need to look far at SIGGRAPH to see innovations and ideas from other industries applicable to the games industry.

Games professionals can gather inspiration from Industrial Light and Magic's 40th Year Anniversary Panel, or compare production techniques from *Big Hero 6* and *Avengers: Age of Ultron* production sessions.

How else can developers get involved?
Consider presenting your work or contributing for next year's SIGGRAPH. As soon as this year's conference is over, we will be gearing up again for 2016. It's a great opportunity to give back to a community that has cradled the spirit of computer graphics and interactive techniques for decades. If interested, I would encourage you to email **games2015@siggraph.org**.

What are your plans for the games focus of SIGGRAPH in the future?
We're going to continue where 2015 leaves off and highlight ground-breaking techniques used in the top games. We want to find even more ways for games developers and students to be involved with SIGGRAPH by providing even more specific content tailored for them. We are looking to incorporate more specific courses, studio talks and 'birds of a feather' meet-ups for students and graphics professionals who want to enter or transition their careers into the games industry. ■

*SIGGRAPH runs from August 9th to 13th in LA. Find out more via **s2015.siggraph.org**.*

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Here are just some of the speakers who will be at Develop:Brighton:

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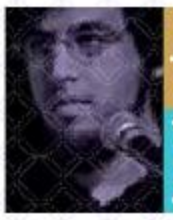
Evolve Opening Keynote: Peak Mobile - Are We There Yet?
Neil Young, N3twork

Prior to founding N3TWORK, Neil was the CEO & Founder of ngmoco, the leading social mobile games company.



Indie Keynote:
Rami Ismail, Vlambeer

Rami is co-founder of Vlambeer, the pioneering studio responsible for Super Crate Box, Ridiculous Fishing and Luftrausers.

Allow Them to Believe: Lessons in Creating Rich Dynamic VR Gameplay
Katie Goode, Triangular Pixels

Twitch, YouTube, Vine... Keeping Ahead of the Video Marketing Curve
Mike Rose, tinyBuild Games

Monetizing Free-to-Play: Making the Most of In-App Purchases and Ads
Bruce Broadbent, Google

A World of Marvel: Exploring the Creative Processes of Games and Film
Ron Ashtiani, Atomhawk

Bring the Trolls Along: Crowd-Sourced Marketing for Small Developers
Jedrzej Czarnota, Manchester Business School

Ways to Fund Your Game
Ella Romanos, Strike GameLabs, Ella Romanos Ltd

'We're not playing very hard!' Using Children to Design Games
Esther MacCallum-Stewart, Digital Cultures Research Centre, University of the West of England, Bristol

Porting Unity Games to Console
Alex Darby, darbotron

EPIC Lessons: An Angry Birds Epic Postmortem
Hendrik Lesser, Remote Control Productions

The World as Your Game Map: Blending Virtual Experiences with Real-World Activity and Exploration
John Hanke, Niantic Labs

Is Trunk-Based Development Easy in Game Development?
Sven Erik Knop, Perforce

"Whither the Middleman?" – An Epitaph for External Producers
Jamie Firth, Consultant

Narrative as a Service: Can Story Help Retain Players?
Ed Fear, Mediatonic

Ten Things Indies Need to Stop Doing Immediately
Lewis Denby, Beefjack

Talking Sense: Best Practice and Lessons Learned from Fifteen Years Creating Dialogue for Games
Phil Evans, Side

The Making of Lumino City: Paint, Paper & Pixels
Katherine Bidwell, State of Play Games

An Indie Developer's Journey from Origin to VR
Ana Ribeiro, Pixel Ripped

Game of Growth
Mark Val, PlayFab

Big $ In Japan
Harry Holmwood, Marvelous

Confessions of a YouTuber
Sam Bennett, Rule 1

Sneaky Tips to Boost Downloads, Increase Sales, and... Get Banned
Peter Heinrich, Amazon

Level Up Your User Interface
Ian Plater, SCEE

Tengami - Rising Above the Fold
Jennifer Schneidereit, Nyamyam

Beyond Monument Valley: Personal Reflections on 18 Years in Game Audio from In-house to Freelance
Stafford Bawler, Freelance Game Audio Specialist

Panel The Future of Games Aesthetics
Chair: Will Freeman, Freelance Journalist

VR Audio: The Feedback Loop
Nick Ward-Foxton, SCEE

The Big Bang: Navigating Explosive Change in the World of Freelance Audio
Ciaran Walsh, Hornet Sound
Adele Cutting, Soundcuts

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The myth of the 'lucky indie'

Maia developer **Simon Roth** dispels the idea that indie developer success stories are entirely built on luck and discusses the hard work that is actually involved

Simon Roth (above) says that any game can be sold with the right amount of effort, pointing to the example of The War Z – now called Infestation: Survivor Stories (main) – which, despite bad reviews, has sold 3m copies

IN THE INDIE business circles I follow, there is often talk about the "luck" in a dev's success.

There's discussions on how *Minecraft* was a fluke, or the old nugget of how Rovio made 51 games before *Angry Birds*, or how development should "fail fast" to increase output and up the odds of a good roll of the dice, and how we must plan our companies around making the one game that will drag us out of the gutter.

This attitude to business is damaging, especially to the indie community. Smaller devs are passing up the chance to create a sustainable business, under the impression they cannot work towards a success with clear direction, and must stumble upon it.

Moreover, it is actively suppressing creativity and distorting the types of games being made. I'm sure most developers who identify as indie would rather not make large design compromises to their vision for the sake of sales.

It seems that the strong misconception around success has been cultivated by the prevalent survivorship bias driving the discussions of business development in indie circles. Key details of accomplishments are glossed over due to them being 'obvious', seemingly unimportant or uninteresting, or the developer is far too modest/embarrassed to attribute their success to hard work on anything but the game.

It means that companies with flash-in-the-pan products grab the limelight whilst solid businesses like Introversion, Positech, Mode 7, Distractionware and Vlambeer plug away at creative, profitable games year after year.

Attributing the success and sales of a game to luck is to admit a black hole in your knowledge of the processes involved. All effort expended in development, marketing, PR and community management can be carefully measured and returns calculated. Risk can be accounted for as a margin of error. Once you know these margins you can work towards improving in the areas you are failing and start building towards a realistic desired outcome.

Thankfully, this is not as hard – or expensive – as it sounds and is well within the grasp of even the smallest micro studios. The majority can be done on a tiny budget and gut feeling; the critical thing is that it must be done.

THE INDIE GAME IS CHANGING

In 2015, you can no longer release a game in a vacuum and expect it to gain momentum. There's no meritocratic option. Indeed, the ethos of 'just make a good game' hasn't been a viable path for developers for several years. Whilst it will certainly help in building coverage and a community – and even on the business side; an IGF nomination will sidestep Steam Greenlight, for example – in reality you can sell any game. *The War Z* – rebranded as *Infestation: Survivor Stories* – was universally panned by critics and often cited as one of the worst games ever, but has sold 3m copies. *Three million*.

The golden age of indie superstars may be over, Steam and other portals may be awash in thousands of games, but it's now easier than ever to drive sales of niche and creative titles. It takes very little effort to rise above

the tide, especially with the greater flexibility and low overheads of being an indie. Forming relationships with the press, YouTubers and streamers, attending and organising events – an independent developer can see positive returns on almost any amount of business development.

As the effort increases so do the gains. Just look at Rami Ismail's tireless work for Vlambeer, attending nearly every games event under the sun, or Mike Bithell's constant and assiduous interaction with the consumer and industry press.

Indies need to embrace this and find their own comfortable place in it. It might seem tough for many who want to see themselves above and beyond the tedium of running and presenting a business, but if devs do not actively engage with it, they will needlessly lose out to those plucky few who will.

Remember, "diligence is the mother of good luck". ■

Simon Roth will expand on this topic during his talk 'Killing the "Lucky Indie" Myth: How to Build a Sustainable Micro Studio' at Develop: Brighton 2015, which runs from July 14th to 16th. Find out more at **www.developconference.com**.

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MOVERS AND SHAKERS

Simon Chaney joins Curve Digital as producer

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RECRUITER HOT SEAT

Senior recruiter Carrie Barcroft on life at Epic UK

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DIARIES FROM ALACRITY FALMOUTH

Life after the business incubation programme

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Getting a job at Team17

The publisher is currently ramping up development on two new unannounced projects, and is looking for senior games development staff. But how do you get a job at the long-standing UK studio? **Develop** speaks to the studio's head of programming David Smethurst to find out what it takes

By Alex Calvin

TEAM17 IS ONE of the oldest names on the UK development scene.

Famous for its *Worms* series, the firm's new direction is the incubation, co-development and publishing of indie titles, including *The Escapists*, which launched in February.

But the company is still working on internal projects, and in fact is looking for a number of staff to help develop new titles.

"We have a number of openings at the moment," says Team 17's head of programming David Smethurst (*pictured*). "We have a senior programmer role, a programmer and a programmer intern at the moment. So the senior developer, we're looking for them to come in and lead a team. They are technical and team leads. It doesn't necessarily mean they'll be leading a team full-time. So for instance we have two projects here that have two seniors – one is a lead and one is a technical role or doing work."

But what is the publisher looking for in these new developers?

"We're looking for people who are interested in making games – we want people to be able to provide feedback on games as they make them," Smethurst says. "We're looking for problem solvers, not people who just write code by rote. We're not looking for people who are going to make it complicated – we like to keep it simple."

> ***"We're looking for problem solvers, not people who just write code by rote."***
>
> David Smethurst, Team17

And when you reach the interview stage at Team17, it's more a case of being realistic rather bragging.

"Just be passionate and be yourself," Smethurst explains. "Don't be trying to impress too much because we can see through that sometimes. A lot of people try to over-impress, and we're thinking: 'Back up, what do you want from this?'

"Just make sure you know what your CV is. We've had people who will talk through their CV and get muddled, forgetting where and when they worked at places. They just haven't studied up on their CV recently.

"The core skills we look for are problem solving and C++. Everything else revolves around that, even if we're doing work using Unity, for example. A lot of it is contingent on the core knowledge. Don't try to be egotistical. There's no I in team, as the saying goes. We like to work with people who like working on a team, not trying to do something on their own and trying to attain massive credit."

As mentioned earlier, Team17 is partially focused on helping incubate and co-develop indie titles now. And in time, Smethurst says it will be looking to expand its team further.

"We are taking on more and more projects at the moment, so yes we will have to ramp up our staff over time," he concludes. "That might occur quite soon." ■

MOVERS AND SHAKERS

This month: Curve, Rebellion, Simplygon, Team17 and Unity

CURVE DIGITAL BOLSTERS PRODUCTION TEAM

CURVE DIGITAL ■ The indie publisher has added a new hire to its production team.

The company has given **SIMON CHANEY** the role of producer at the indie studio.

Chaney has seven years of production experience, starting in 2006 as an associate producer at THQ, before rising to producer.

He then joined Sony in 2009 as an associate producer on its PlayStation Home initiative, rising up to the role of production lead. He remained at the company until the service closed in April earlier this year.

> ***"Simon Chaney's experience working on major console projects is going to be invaluable to our team."***
>
> Jason Perkins, Curve Digital

Before he had a career in production, Chaney worked as a QA technician – he worked in this capacity at EA for two years, before moving over to THQ in this field.

"Curve is publishing at least six more games this year, many on multiple formats, so Simon's experience working on major console projects is going to be invaluable to our team," Curve's managing director Jason Perkins said. ■

UNITY ■ The engine firm has brought former Microsoft exec **ELIZABETH BROWN** on board as its chief people office.

Brown has more than 15 years of leadership experience, including a stint as senior director of HR at LinkedIn and vice president of human resources at online marketplace Trulia.

That's on top of six years as director of human resources at Microsoft. During her time at LinkedIn, Brown was responsible for over 1,000 new hires in two years.

She is the latest in a list of new hires that includes Mike Foley, Clive Downey and Rob Pardo. ■

TEAM17 ■ PR veteran **SAM FORREST** has joined indie games publisher Team17.

He will be serving in the role of PR director, and comes to the indie label with 20 years of industry experience. He has previously had communications roles at *RuneScape* studio Jagex as VP of communications, and before that spent nine years at THQ in a number of senior comms roles. Most recently he was working as a freelance PR for the likes of Versus Evil.

This appointment comes amidst the hires of Microsoft's Chris Eden and Get Games Go's Harley Homewood in senior business development roles. ■

REBELLION ■ Former *Joystiq* contributing editor **SINAN KUBBA** has joined Oxford-based publisher and developer Rebellion.

Kubba was *Joystiq*'s only European writer for two and a half years. He has also written freelance for the likes of *IGN*, *Ars Technica* and *GameSpot*. He joins Rebellion as PR coordinator.

"I'm incredibly grateful to have this new opportunity at Rebellion, which has been such a huge part of the UK industry for so long," said Kubba. "I had a great feeling about the company and everyone here from the first time I was invited, and even in my brief time at the studio that's only been reinforced." ■

SIMPLYGON ■ The Swedish 3D optimisation tech firm has hired industry veteran **MATT CONNORS** as its CEO.

Connors has had an esteemed career, starting out in 1996 as senior product manager for Macromedia. He then went on to hold marketing roles at the likes of Apple, Sonic Solutions and ScrollMotion.

"Simplygon has developed a loyal customer base in a very demanding market," said Connors. "We have an extremely talented team and great tech – the firm is poised for growth in both our core video game market and for real-time enterprise and consumer visualisation experiences." ■

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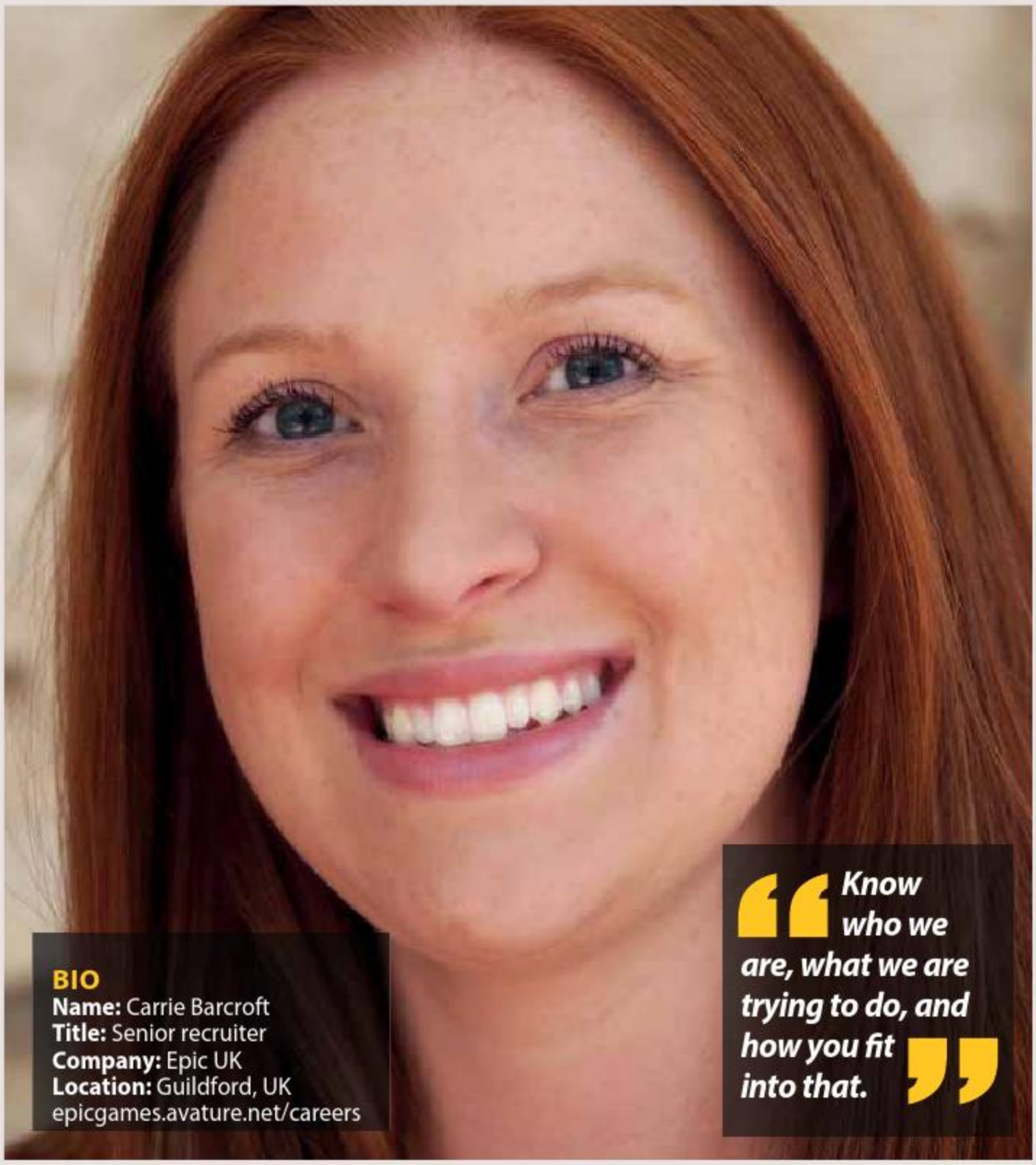
SkySaga developer Radiant Worlds' spacious open-plan office houses 80 members of staff, where the company culture encourages collaboration in shared workspaces.

RECRUITER **HOT** SEAT

Epic UK's senior recruiter **Carrie Barcroft** on what the company looks for in prospective candidates


BIO
Name: Carrie Barcroft
Title: Senior recruiter
Company: Epic UK
Location: Guildford, UK
epicgames.avature.net/careers
"Know who we are, what we are trying to do, and how you fit into that."

How many staff are you looking to take on?
Here at Epic Games, we focus on hiring brilliant developers who will add value to the games we're building and to the evolution of our engine technology. While we're working to fill a handful of roles at the moment, there are no hard lines, as we'll always find a place for someone exceptional.

What perks are available to working at your studio?
The biggest perk about working at Epic is the value the studio puts on employees. The company genuinely wants you to be happy and will do what it takes to ensure that you have a great work-life balance.

For example, there are no core hours, and we have unlimited vacation and sick time. In addition, Epic Friday each month enables our employees to work on something outside of their normal duties that is of interest. And, of course, there's all the fun stuff we offer: our fitness centre, fully stocked kitchen, awesome playtest labs, gaming hours, all kinds of studio events; I could go on for a while.

What should aspiring developers do with their CV to help ensure they get an interview?
Candidates should focus their CV on the contributions that they have made in past roles. Provide detail but keep it brief and to the point. Always make sure to include side projects and any notable achievements. Stand out from the crowd, and show us what makes you special.

Who is the best interviewee you have ever had and how did they impress you?
I remember this one kid several years back who had such a passion for the studio and industry as a whole that it was radiating off of him. He had the attitude of wanting to do whatever he could to be a part of the Epic team, as long as he was able to learn and work with the talented employees. The cupcake he brought me helped, too. Show your excitement and passion; communicate what gets you out of bed each day.

And who was the worst?
One candidate who did not make a great impression was a programmer who told me three times in a matter of ten minutes that he was terrible at math.

What advice would you give for a successful interview at your studio?
Come prepared; know who we are, what we are trying to do, and how you would like to fit into that. Most importantly though, be yourself.

If you have recruited employees internationally, what has this process been like?
Recruiting internationally is quite similar to doing so in the US, but with even more new faces on the block, so to speak. Exciting times.

How have your recruitment needs changed at your studio?
With the way the games industry is trending we have had to add new groups within Epic to help us grow with the times.

For example, we now have our online team that is spinning up all the behind-the-scenes work on the upcoming *Fortnite*. We also have a great data and analytics group taking on the challenge of big data in games.

Why should devs join you when indie and self-publishing have become so much more accessible?
The Unreal Engine is used by people all over the world, and is powering many of the greatest games being released today – both indie and triple-A.

As part of the Epic family, you are putting tools into developers' hands, and giving them what they need to make their dreams come true. It's a pretty cool feeling to know that you've contributed to a force that helps shape the industry. We're also building really exciting games, more of which will be announced soon. ■

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GET THAT JOB

Development specialists offer advice on how you can bag that career leap

THIS MONTH: SENIOR PRODUCER, WITH BIGPOINT'S SHAWN LORD

What is your job role?
I'm a senior producer on *DarkOrbit Reloaded* at Bigpoint in Hamburg.

What qualifications and/or experience do you need?
Producers benefit greatly from having had real hands-on experience with development teams and products. A significant portion of the role relies on a producer's ability to adapt situationally day-to-day and communicate effectively with disparate disciplines, while maintaining a clear long-term vision for the team and product.

As with any, more formalised skillset, leadership, situational awareness, game-specific business acumen, and other production-centric skills can all be learned through years of studying and practice.

There's no single correct path to getting here, but they're all rooted in a love for people, products, and organisational success.

How would someone come to be in your position?
Individuals who find they have as great a passion for the people, processes and business behind games, as they do for the games themselves, will likely end up in a production or similar leadership role.

Whether they start in customer service, quality assurance, design, art, or tech – any individual that pushes themselves to learn about all aspects of games development, while constantly looking for ways to improve their area of influence and provide leadership – can eventually become a producer.

If you were interviewing someone, what do you look for?
I look for people that have a passion for making great products and services, communicate clearly, have an entrepreneurial mindset and display a confident presence – but also demonstrate adaptability, empathy and lack of overt ego. ■

If you've got job advice to share, email **acalvin@nbmedia.com**

Diaries from **ALACRITY FALMOUTH**
Innovations in Incubation

Ready for business

Alacrity Falmouth student **Harry Stevenson** ponders what follows the incubation programme

NEARLY A YEAR on from the start of the Alacrity Falmouth programme, each team is looking forward to officially incorporating new companies and stepping away from the support of the incubation studio – although we will have an ongoing relationship.

We've spent a great deal of our time recently planning out the future in business plans, financial projections and project milestones. However, a potentially far more interesting and less obvious exercise is to consider the lessons we have learnt, which will shape our decisions going forward.

The insights we have gained over the year have not simply been through osmosis, but rather a stringent and structured process of performing the necessary business tasks to accompany product development.

This brings me on to the first real change in working style I experienced: setting aside the time and care required to create in-depth and useful business documents.

University taught me to write code and output game features, but what I missed as an undergraduate was how little a new product means without the supporting business case.

> ***"Trust is not just beneficial in creating a game and business – it is essential."***

Of course, just having a business plan, project plan and so on is not enough. Showing a potential investor your financial requirements and development schedule will be hugely useful, right up until they open the first page to find pie-in-the-sky figures and immediately declare themselves 'out'.

The second significant lesson was to critically review and evaluate my writing, considering what the person on the other side of the table might be thinking. Luckily for us, this process of deep research and critical evaluation is ingrained into Alacrity from day one.

Fostering trust in your team is not just beneficial in creating a large game and a new business – it is absolutely essential. Without it, we as a group would miss out on the key benefit of being in such a team, which is the massively broadened skillset we can collectively utilise. Each team member brings something new and diverse to the table, and it is safe to say that without that diversity, our chance of failure rises exponentially.

Perhaps even more crucial though has been the opportunity to remove the 'game development blinkers' which leave so many developers focused on just implementing features, rather than stepping back to see the project as a whole. We began the year as students, looking just to develop games; we finish it as games developers, aiming to learn and grow with our business and our industry. ■

SKILLS AND TRAINING

This month: Kajaani University

Kajaani University of Applied Sciences
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87100 Kajaani, Finland

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W: www.kamk.fi

BASED IN FINLAND, Kajaani University has supplied graduates for a plethora of the country's studios.

From Supercell, Red Lynx, Remedy and Frozenbyte, to companies outside the nation such as Wooga, the educational institute has a track record in producing ready-for-hire developers. In fact, overall its students have been employed by around 30 different companies.

Its courses for students include Game Producing and Design, Game Programming, Game Graphics and Game Technology. During their time at the University, pupils get access to an array of technology, including Unity, Unreal Engine, 3ds Max, Maya, Blender, Visual Studio, Photoshop and a variety of free software. It is also the only Sony PlayStation First Academic Partner in Finland, giving learners the opportunity to develop PS4, PS3 and Vita games.

Kajaani University has its own game development studio, Kajak Games, the money from which is used to send students to nearby events

> ***Learning by doing gives our students better learning results.***
> Veli-Pekka Piirainen, Kajaani University

Speaking to *Develop*, Kajaani University head of game development Veli-Pekka Piirainen says one of the key elements of its course structure is that it tasks its students with making practical game projects in teams. Pupils will have two days per week for classroom teaching, and three days per week for game projects.

"The aim is to study the most practical way in a 'game studio-like' environment, because learning by doing gives better learning results," explains Piirainen. "The purpose is to learn commercial games development from the beginning to the end – i.e. until publishing the game.

"It motivates students a lot, because they have the possibility to develop their own games products and earn some money too. Our purpose is to contribute students' preparation for working life. Many companies praise our students, because they have learned games development and team working routines already during their study time. Team working is in a very important role at our university and all our students start to make games in a team from day one. A great advantage for us is that all students – programmers, artist, designers and producers – are put together in the same classroom all the time; except during special classes."

Outside of its own courses, the University has partnerships all across Europe and Asia, including in Sweden, Belgium, Netherlands, Portugal, Singapore, Thailand, China, Taiwan and South Korea, and it also has a student exchange programme enabling pupils to work and study abroad.

The education institute also has partnerships with local game companies, within Kajaani itself, across Finland and abroad, such as developer Wooga in Germany.

It also has its own student-founded studio, Kajak Games, which is completely managed by pupils, with space and equipment produced by the university. The studio publishes students' games and takes care of work-for-hire, and money made supports their visits to development events across the region. ■

INFO

Courses: Game Producing and Design, Game Programming, Game Graphics, Game Technology

Country: Finland

Founded: 1992

Staff: **Veli-Pekka Piirainen** (Game project leader, Game business, International partnerships), **Leena Heikkinen** (Game programming), **Tuomas Suvanto** (Game graphics), **Raimo Mustonen** (Game design), **Sako Salovaara** (Game producing), **Kalle Pakalen** (Game sounds)

Alumni: **Juhana Jaaksi, Petri Ruuskanen Tiia, Kiesiläinen** (Frozenbyte), **Kim Puolakka** (Remedy Entertainment), **Mikael Kitola** (Playraven), **Vili Viitaniemi, Topias Vesalainen** (Ubisoft/ Red Lynx), **Simo Pöllänen** (Unity Technologies), **Veli Vainio, Ilkka Leino** (Supercell)

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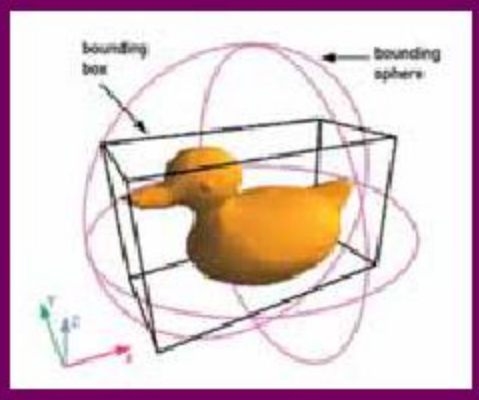

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Moving with the times

Motion, facial and full performance capture is common in games today, but with a myriad of systems out there, how can developers know which is right for their game? **James Batchelor** asks motion capture experts for their insight

FROM KEVIN SPACEY declaring war on the world in *Call of Duty* to a frightened girl sneaking around dystopian halls in mobile series *République*, you don't have to look far to see motion capture in action.

Countless titles use it for everything from cutscenes to in-game animations, but the technology may still seem daunting to some developers. Marker-based or markerless? Optical or inertial? Facial capture? Full performance? These are some of the many questions studios need to consider when looking into introducing motion capture to their development process.

Develop has consulted multiple mo-cap experts – from both the firms that provide the hardware and capture services, to triple-A studios – to compile this comprehensive guide.

ON YOUR MARKERS

Let's start with the most traditional form of motion capture: marker-based. Actors in figure-hugging suits covered in bobbles are tracked by multiple cameras, and the data is later retargeted onto in-game character rigs – it's the form that initially springs to mind when mo-cap is mentioned.

Stoo Haskayne, head of production at Centroid, which recently signed a partnership with Pinewood, says this system's biggest advantage is decades of experienced users: "The technology has been in use for so many years now that all the teething troubles have been resolved and it is solid and reliable."

Audiomotion founder and MD Mick Morris agrees, adding: "The advantages of a marker-based system is that it always just works. The markers are soft so there's no danger of performers injuring themselves or having the discomfort of wearing batteries or hard sensors.

"Our system is sub-millimetre accurate so it records even the tiniest nuance, the smallest detail. An optical marker system means you can also build a huge volume – the same needed

OptiTrack chief strategy officer Brian Nilles (above) says the primary disadvantage of marker-based mo-ap is that performers have to wear reflective markers, but feels markerless mo-cap is still someway off capturing full live-action scenes

Dimensional Imaging CEO Colin Urquhart (above) believes markerless technology is the ideal solution for facial performance capture

for mo-cap – and still capture everything. With markerless, you are limted to a pretty small area."

Another advantage, observes OptiTrack's chief strategy officer Brian Nilles, is that this large volume enables devs to capture scenes with several characters all at once. However, no solution is perfect.

"The primary disadvantage of marker-based mo-ap is that performers have to wear reflective markers and, for best results, a tight fitting suit," says Nilles.

> ***"Marker-based mo-cap has been in use for so long that all the teething troubles have been resolved."***
>
> Stoo Haskayne, Centroid

Other experts point to the fact that optical marker-based systems require a clear line of sight to the markers, so any occlusion can disrupt a shoot – although some firms claim this issue can be resolved.

FREE FROM BOBBLES

Markerless motion capture is the main alternative, with Nilles claiming it adds a little more freedom for performers.

"With markerless mo-cap, they can be in full costume or wearing street clothes," he says. "However, this system is restricted to smaller volumes and lower character counts, and it produces less accurate skeleton solves that are typically marked by noisier data and inaccurate rotational measurements.

"The promise of markerless mo-cap is that eventually users will be able to capture animation from live-action sequences,

BUILD YOUR OWN STUDIO

SOME STUDIOS MAY consider investing in enough mo-cap tech to create their own in-house capture studio.

Total War dev Creative Assembly has operated such a facility for over a decade now, currently home to a 48-camera Vicon Optical system that captures everything within the 100m2 area. The result is better collaboration between all teams, from animation and cinematics and development.

"The animators regularly pop over to prototype characters, or act out a cutscene," explains mo-cap manager Peter Clapperton. "Meanwhile, the cinematics team have access to real-time screening using characters from the current game for instant pre-viz work and the use of a virtual camera to get the shots in place. It is a very impressive toolset to have available.

"At the time of writing, we are about to receive our first head-mounted camera set so we can make further headway on full performance capture, hopefully bringing in the audio team in future. "

Of course, not everyone has the space for a complex mo-cap studio, but there are other options. *Just Cause* creator Avalanche Studios opted for Xsens' inertial-based MVN system.

"In our New York studio, we don't have the capacity to support a permanent capture volume," explains lead animator Alex Crowhurst. "Xsens' tech is extremely accessible, portable and does not require a volume installation.

"Another benefit is that turn-around times are extremely fast, getting captured content in-game the same day. Having the freedom for us to be able to jump into the capture suits when we need, without the need to book session times at a studio, means we are not time pressured to rush through content and we can capture the data we want."

centroid
MOTION CAPTURE

centroid [**sen**-troid] *noun*
the centre of mass of an object

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t: +44 (0)1932 592812

Xsens product manager Hein Beute (above) says inertial motion capture has many benefits, including unlimited capture volume and clear data

although the technology still needs to progress quite a bit before that's a reality."

A solution to these issues is the use of inertial mo-cap, something tech firm Xsens specialises in. Its capture suits have sensors woven into the material or inserted into strategically placed pockets to track an actor's movements.

"Ease of use, unlimited capture volume and clean data are typical advantages of inertial mo-cap," says product manager Hein Beute. "The set-up time is however long it takes to place the inertial trackers on body using a suit or straps, plus a calibration of four seconds.

> ***"It is increasingly easy to capture facial performance from actors with much higher fidelity."***
>
> Colin Urquhart, DI

"Inertial motion capture systems have no limit in mo-cap volume as you can record anywhere, meaning your mo-cap can be done where the action takes place. Snowboard moves can be captured in the natural environment, not simulated in a studio. A performer will act more natural in an environment that is familiar to him."

The obvious disadvantage, Beute observes, is that performers have to wear the all of the tech during the shoot. However, given the ongoing trend for technology – particularly wearables – to get smaller as they develop, this is unlikely to remain an issue for too long.

ALL ABOUT THAT FACE

Markerless mo-cap also has its advantages when you're focusing on facial movements, argues Dimensional Imaging CEO Colin Urquhart.

"It is impractical to place and track more than 100 markers on a person's face, which fundamentality limits the fidelity of marker-based facial motion capture," he says. "It is also very difficult to place markers on some of the most important areas of the face, such as the lips or very close to the eyes.

"There are no such limitations with a markerless solution such as DI4D, which therefore delivers much higher fidelity data and captures more of the subtlety and nuance of facial performance and expression."

Such a system also does away with the issue of consistently placing facial markers in the same spot before each shoot, or worrying about the markers falling or getting rubbed off. The result is a quicker set-up time.

Urquhart acknowledges that there are limits to the technology's quality due to the "current lack of real-time processing", but suggests it is still preferable to traditional animation techniques.

"As the graphical quality of games continues its relentless progress, it is becoming harder to create the required level of realism of facial animation by hand," he says. "Fortunately, at the same time, it is increasingly easy to capture facial performance from real-life actors with much higher fidelity."

When it comes to facial capture systems, Urquhart advises a multi-camera setup as "a single camera is only able to capture 2D data in which depth can only be inferred". Haskayne agrees, adding more camera means more reference data, and "the more reference, the better".

Morris, however, says a single camera system can suit some devs' needs: "It's simple and makes the head-mounted camera much lighter, which is important when you have an actor wearing one all day. Too much weight causes discomfort and headaches, and you aren't going to get a really good performance from your actor if they are suffering."

And this is crucial, as the actor's are just as important as the technology tracking them. As the quality of animation increases, poor

PERFORMANCE ISSUES

AS SEVERAL OF our mo-cap experts observe, the technology is useless without a quality performance to capture.

Martin Vaughan, casting director at SIDE – which has cast actors for titles such as *Alien: Isolation*, *Ryse* and *Kinect Sports Rivals* – says devs need to focus on the whole performance, not just the motions.

"Traditionally, the actors used for mo-cap were not the same ones used to voice the characters in-game. Ideally, there should be continuity from motion capture through to voice as this is the best way to get fully integrated, affecting performances. The best way to achieve this is with full performance capture shoots: simultaneous voice, facial and full body capture."

Vaughan adds that casting for performance capture has become closer to casting for film and TV. It's as much about the abilities of the people in the suits as it is the cameras. With that in mind, he offers the following advice on how to cast actors for your game:

- Use an experienced casting director. Their knowledge of the talent pool and relationships with agents will help source quality actors.

- Allow some flexibility. Create casting briefs that focus on character rather than their physical aspects. Consider whether the character's ethnicity or age will impact gameplay.

- Ensure your brief is clear. If referencing film or TV characters or well-known actors, indicate what it is you like about them: their voice, their physical movement, their attitude and so on.

- Ensure your audition script is delivering the character traits you're looking for. If the character goes through a major change in attitude or emotion, or needs to move in a specific way, the script should cover that.

- Direct the actors. Don't expect actors to immediately hit the mark. Part of the audition process is to see where they can take the character, under the guidance of a good director.

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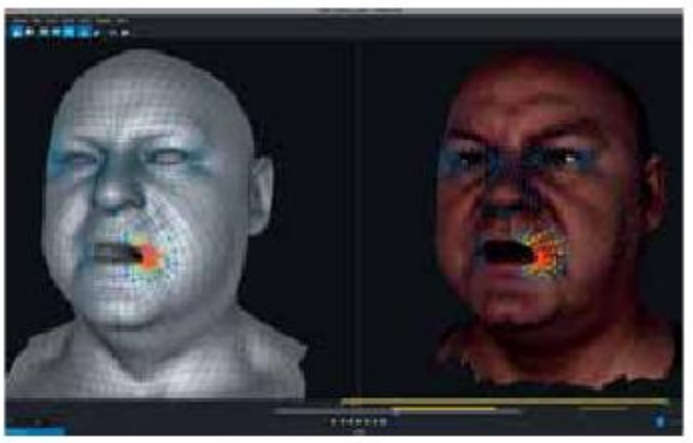
Audiomotion MD Mick Morris (top), and Centroid head of production Stoo Haskayne (above) both say marker-based motion capture has a number of advantages, including the fact that it's very reliable technology



performances become harder to hide, which is why devs need to think carefully about their casting (*see 'Performance Issues'*).

CAPTURE THE MOMENT

So which mo-cap solution is right for your studio? There are a number of factors to consider, including: the environment you intend to shoot in, whether outdoors or indoors, the number of actors, the complexity of their actions, whether or not the scene will involve props or virtual cameras, the size of the space available, and, of course, the cost.

"Historically, high costs forced devs to make concessions surrounding some of these issues," says OptiTrack's Nilles. "High-res cameras offered more nuanced data, but were so expensive that studios had to settle for low camera counts, resulting in excessive data clean-up. Low-res cameras enable higher camera counts for more continuous but lower fidelity data."

When it comes to capture space, Centroid's Haskayne advises: "Generally a large volume – with no windows, skylights or natural lights – covered by a high number of cameras will be good for most purposes."

On facial capture, Urquhart says the choice comes down to a head-mounted camera or a fixed array of cameras.

"Using a HMC gives the actors more freedom to move around, making full performance capture more practical," he says. "A fixed array typically makes actor movement much more constrained, but the actor is not encumbered by a helmet system, and the data is typically of better quality."

Just Cause 3 dev Avalanche Studios uses a mix of optical and markerless mo-cap systems with keyframe animation for in-game content, switching to full performance capture – including facial – for the cutscenes. The animation programmers even work with the animators to plan mo-cap sessions.

> ***"I'd like the future of mo-cap to take advantage of combining marker-based and markerless."***
>
> Peter Clapperton, CA

Lead animator Alex Crowhurst offers the following advice: "Research the latest tech to find out what meets your project's expectations and production needs.

"Build a pipeline that is robust and as efficient as possible: the quicker you can get your content from initial capture to engine side, the quicker your team will be able to iterate on feature sets."

The quality of motion capture systems will inevitably improve in future, but what are the current limitations that need to be overcome in the meantime?

MOVING FORWARD

Nilles points to set-up times: "Motion capture is going to become easier to set up and use. It will become more invisible on set, faster and will require less work on the back end."

Urquhart adds: "The quality and fidelity of mo-cap will undoubtedly continue to increase with the increasing pixel count of cameras. As a result the quality of the acting performances will become increasingly apparent."

Xsens' Beute predicts mo-cap will soon become "more accessible and affordable".

"Today a motion capture performer is always faced with technology, whether faced with many cameras or wearing inertial trackers," he says. "Inertial motion capture will get more unobtrusive and smaller, and will even be integrated into clothing."

Creative Assembly mo-cap manager Peter Clapperton concludes: "I would like to see the future of mo-cap take advantage of combining marker-based and markerless together to create a system that is as fault free as possible. Better computing technology and more intelligent software will eventually enable a system to be relatively faultless during the capture process.

"Philosophically, in a mo-cap utopia, we wouldn't be battling to build the better system, but working together to build the best system possible." ■

ANIMAL MAGIC

AS THE CAPABILITIES of mo-cap systems grow, so too do the ambitions of those who use them. Even animals are now a focus for performance capture, with developers hoping to introduce realistic animal movements into games.

Audiomotion founder and MD Mick Morris says his firm regularly handles such shoots, and they can be both tough and rewarding.

"At least humans take direction – well, sometimes," he says. "Animals need handlers, and even then you sometimes won't get what you want.

"The main technical challenge is preparing a suit that fits the animal. If you can't tailor a custom suit, the results will look terrible. Retargeting the resulting animation to a rig is always a challenge.

"Horse shoots are particularly difficult because of the dust and sand they kick up when moving at speed. Single horses are tricky enough, but we've paired them together, hitched them to chariots, and put two stunt performers in the back, facing a technical challenge few companies want to deal with."

Berlin-based developer Yager has incorporated plenty of motion capture for horses and dogs into their games, but approached Audiomotion with a rather odd request for the upcoming *Dead Island 2*.

"They asked if we could try to put a cat in a suit," Morris explains. "We said we would try but warned them that a cat will simply do its own thing and there were no guarantees of success. It actually worked and we got some great moves from our feline friend – even if he will appear slightly grumpy in the game."

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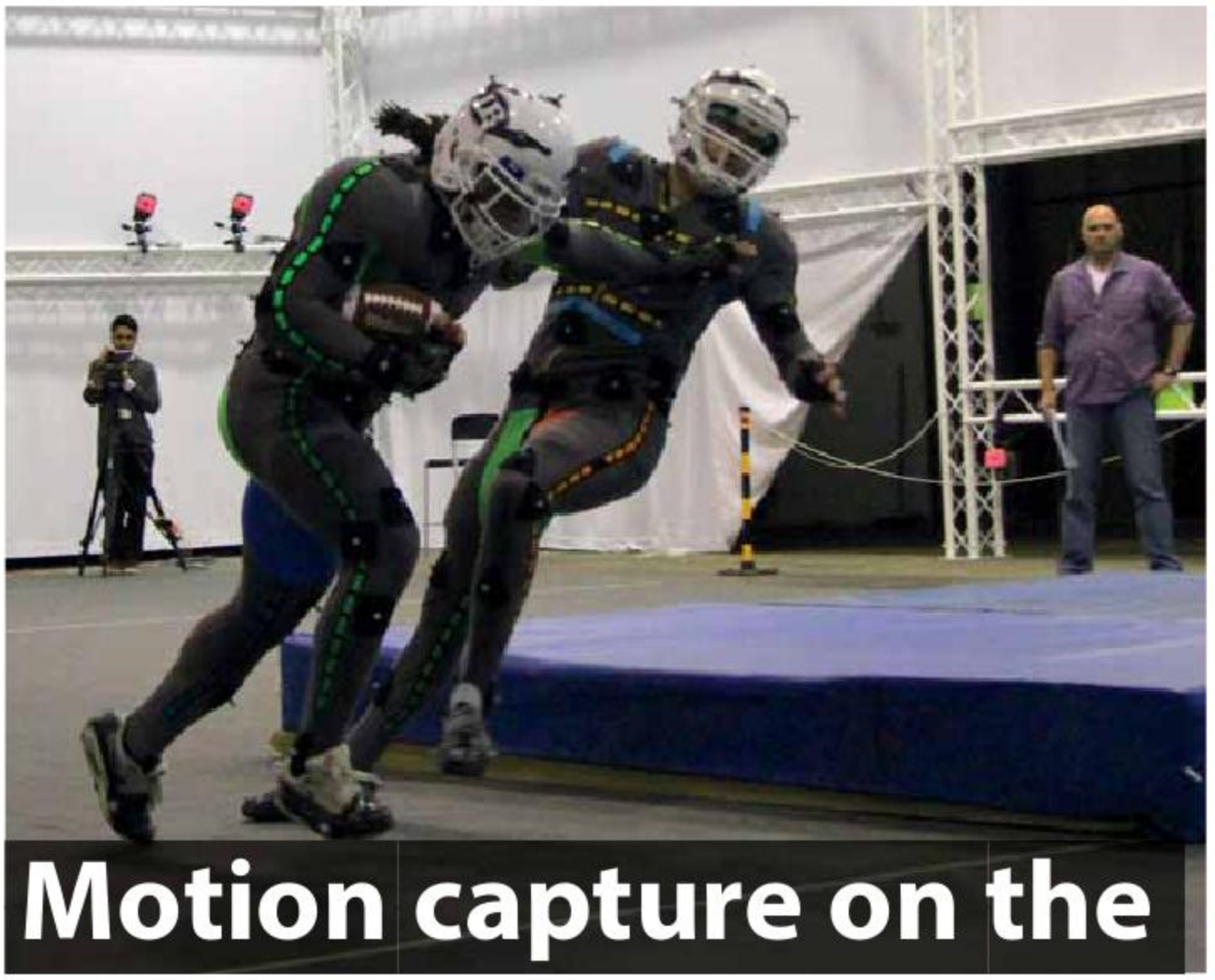

Motion capture on the move

Centroid CEO **Phil Stilgoe** discusses how mobile developers are utilising motion and performance capture for their games

Above: Centroid CEO Phil Stilgoe

Main: Centroid has handled mo-cap shoots for a number of mobile sports games, using real movement for in-game animations

SINCE THROWING IN the towel as a mo-cap supervisor and accepting a promotion to CEO of Centroid, I now spend much of my time attending industry conferences – and the myriad of accompanying parties – looking for new business opportunities.

You would have to either be: a) new to the industry, or b) hell bent on spending your expenses and time in the same bar, to have failed to notice there has been a significant change in the type of developer attending gaming conferences. There has been a huge increase in mobile developers matched by a rapid decline in those working on console games.

Increasingly, I find myself meeting developers who are creating realistic animations for their games and when asked if they've considered using a motion capture pipeline for their characters, I am often faced with one of two answers.

The first is: "We only have a small budget and therefore can't afford to use an optical motion capture pipeline". The second is: "It's a mobile game and therefore we don't need to use motion capture because you never see the animation up close". Of course both of these reasons are valid.

A small percentage of these developers could save themselves both time and money through exploring mo-cap pipelines to a greater degree, dispelling the myth that optical mo-cap is reserved for triple-A console games and blockbuster Hollywood movies. A myth that I believe in this decade simply isn't true.

What is true – and is important to acknowledge – is many developers are already experimenting with alternative, commercially available motion capture systems, such as the Kinect and PS4 camera. Some developers have achieved great things with these more experimental mo-cap approaches while others have not been quite so fortunate.

Motion capture pipelines have developed over the last decade. Most VFX movies now rely heavily on capturing every nuance of an actor's performance, as is the same for cinematics in triple-A console games.

CENTROID & MOBILE DEVS

Motion capture has evolved into full performance capture, but this is just one facet of the technology. Mo-cap is still very much a tool for creating and achieving large volumes of realistic human animation in a very short space of time.

Centroid's motion capture studios, working closely with major industry clients, regularly capture 200-plus pre-designed locomotion body animations in a day. Once the client's data selections have been made, we can process and deliver these animations, retargeted to digital characters, back to the client within a couple of days. A turnaround time which I firmly believe would be highly competitive to most small character animation teams.

I have never been of the opinion that motion capture will replace traditional animation. I do believe, however, that as a cost and time efficient solution to recreating high-quality realistic human movement, there is no better option.

Centroid already has a tried and tested pipeline for mobile developers. Two companies keen to push the boundaries of mobile production were NaturalMotion and Distinctive Developments for whom we captured sports such as american football, ice hockey, rugby and football. Shoots such as these aren't always straightforward, regardless of the intended final platform.

It goes without saying that our production approach to capturing data for a mobile platform is the same for a console game. Where things differ slightly is the post-production pipeline; we retarget data to a character rig which has a reduced number of bones, and so far this has proved to be easier.

As the animation requirement for a mobile game is less than that of a console title, it may not be economically viable to employ motion capture production on a daily rate. To address this, Centroid has developed an online application allowing clients to direct shoots remotely.

This technology has drastically cut the cost of motion capture as a production tool while maintaining the high levels of quality and service that our clients have come to expect.

The age of armchair mo-cap production for the masses is upon us. ■

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Performance in motion

For all the attention on technology, the actor may be the most complex tool in motion capture. **Will Freeman** meets Oliver Hollis-Leick, a mo-cap actor determined to help developers – and actors – get the most from performing for games

Motion capture expert Oliver Hollis-Leick wants to see a change in how actors are cast in games, with a move away from solely focusing on voice

IT CAN BE easy to forget the star of the motion capture process.

Perhaps it is because of the anonymity a mo-cap suit engenders, or maybe it's that the performer's face rarely makes the final game. Whatever the reason, the acting talent that is reskinned and retargeted as animators apply their craft sometimes struggles for recognition.

Things are changing of course, as those that make games better understand the art of performance, while their contemporaries in realms such as film, theatre and TV grow increasingly familiar with the games medium and development process.

One actor with a wealth of experience in performing for games is hoping that this new understanding is just the start. In his 12 years performing covered in mo-cap hardware, Oliver Hollis-Leick has filled the shoes of characters like Master Chief and the video game incarnation of James Bond, and now he wants to help acting professionals, developers and ultimately players to get the most from performance in video games.

Foremost, Hollis-Leick believes there remains an opportunity for yet more actors to embrace games, and he is certain their skillset is applicable, even if the medium does demand a different type of performance.

"Motion capture performing is no different from other forms of acting, really," offers Hollis-Leick. "You still have to communicate the truth of a character. But you have to do it in a slightly different way, to get that truth across."

The differences are many. There's the typical lack of costumes and sets – presenting an opportunity for, says Hollis-Leick, some of the purest forms of acting. Then there's the fact the performer's form and appearance often matter not, as animators tweak a person's movements after the shoot. And that significant factor of all; capture nuance.

> ***"There is much room for improvement in the way that developers work with actors and directors."***
>
> Oliver Hollis-Leick, Actor

THE GAME'S A STAGE

"Despite all the advances in motion capture, it's not 100 per cent accurate," says Hollis-Leick. "That means as an actor you're still having to modify your performance to accommodate for that. But within maybe ten years, that will change."

There is a lot for even experienced actors to learn, then, if they want to be involved with games. But, insists Hollis-Leick, the opportunity is vast.

"There's so much to learn there, new actors have a real challenge," he says. "It's so unbelievably complicated. That's why I believe in training up new actors, the standard of both motion capture and games will increase."

Hollis-Leick's belief led him to establish The Mocap Vaults, a learning resource and training and service provider conceived especially to better the quality of modern motion capture.

"There is so much room for improvement in the way that developers and publishers work with creatives like actors and directors, but it's going to require a real shift away from some ingrained habits," he says. "Video games also have obstacles that are unique to their industry, like production cycles that last up to five or six years."

THE CODE'S A STAGE

Another problem is broader misunderstanding about the mo-cap process.

"You see people walk into the studio and treat it like an extension of keyframing, posing the actors one limb at a time," states Hollis-Leick. "You see film directors walk in and work all day trying to get a naturalistic, deeply subtle performance which is inevitably lost on the mere 56 markers attached to the actor's body. Motion capture is its own thing, unlike film or theatre, and requires a unique approach."

It's the reason Hollis-Leick and director John Dower established The Mocap Vaults. But what do they see as the ideal way that devs and performers should work together?

"In my ideal scenario, the developers would bring in actors to do a reading of the early script, workshop the characters and lines and collaborate on the story," states Hollis-Leick. "When it comes to casting, we currently see actors cast on their voice alone, maybe their likeness, but rarely their ability to physicalise the character. This absolutely has to change." ■

www.themocapvaults.com

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Alex Crowhurst, Lead Animator at Avalanche Studios

Motion Capture

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MICROSOFT SPOTLIGHT

Understanding collisions & physics

3D expert David Rousset advises how to build a cool WebGL Babylon.js demo with Olmo.js

Microsoft's David Rousset guides developers through how to understand and alter the physics of the Espilit environment, and create new objects that collide and interact with existing objects in the museum

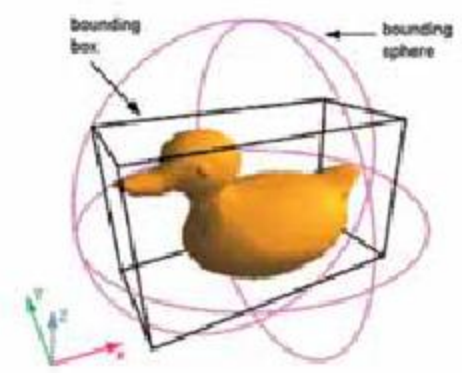
I'D LIKE TO share with you the basics of collisions, physics and bounding boxes by playing with the WebGL babylon.js engine and a physics engine companion named oimo.js.

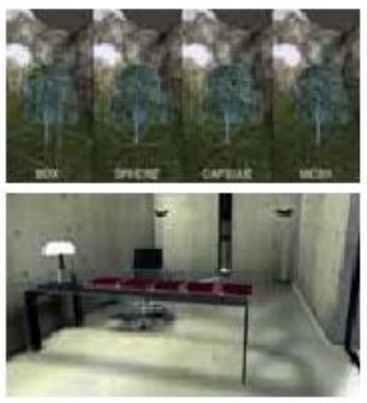
We're going to talk you through how to recreate a physics demo – the *Espilit museum* – using these tools. The demo can be found at **www.babylonjs.com** and launched in any WebGL compatible browser.

We're going to unpack the definition of 'collision detection' by looking closely at the *Espilit* demo that will act as our starting base for this tutorial.

You can move through this digital museum as you would in the real world. You won't fall through the floor, walk through walls, or fly. We're simulating gravity.

The first question we need to resolve when we think about collisions detection is: how complex should it be? Indeed, testing if two complex meshes are colliding could cost a lot of CPU, even more with a JavaScript engine where it's complex to offload that on something other than the UI thread.





To better understand how we're managing this complexity, load up the *Espilit museum* demo and navigate your way to the desk. You'll find you're blocked by the table even if there seems to be some space available on the right. Is it a bug in our collision algorithm? No, it's because Michel Rousseau – the 3D artist who built this scene – has done this by choice. To simplify the collision detection, he has used a specific collider.

> ***Capsule is useful for humans or humanoids as it better fits our body than a box or a sphere.***

WHAT'S A COLLIDER?

Rather than testing the collisions against the complete detailed meshes, you can put them into simple invisible geometries. Those colliders will act as the mesh representation and will be used by the collision engine instead. This will allow us to use much less CPU as the math behind that is much simpler to compute.

Every engine supports at least two types of colliders: the bounding box and the bounding sphere. You'll better understand by looking at the image of the duck above. The duck is the mesh to be displayed. Rather than testing the collisions against each of its faces, we can try to insert it into the best bounding geometry. In this case, a box seems a better choice than a sphere to act as the mesh impostor.

Based on the complexity of the collision or physics engine, there are other types of colliders available: the capsule and the mesh for instance. Capsule is useful for humans or humanoids as it better fits our body than a box or a sphere. Mesh is almost never the complete mesh itself – rather it's a simplified version of the original mesh you're targeting – but is still much more precise than a box, a sphere or a capsule.

BUILDING THE ESPILIT DEMO

You can find Rousset's full guide on how to build and understand this physics demo in the Tutorials section of the *Develop* website.

The tutorial will talk developers through how to understand and alter the physics of the *Espilit* environment, create new objects that collide and interact with objects already in the museum, and display and alter bounding boxes and spheres. It also includes links to the original demo and code excerpts. ■

www.develop-online.net/tutorials

This article is part of the web dev tech series from Microsoft, and was written by David Rousset – a senior programme manager for Microsoft, in charge of driving adoption of HTML5 standards, and co-author of the WebGL Babylon.js open source engine. Follow him via @davrous on Twitter.

HEARD ABOUT

Now We Are Ten

John Broomhall looks forward to the Develop Conference Audio Track's tenth anniversary

John Broomall says this year's Develop: Brighton conference will feature a stellar line-up of audio speakers, including Rockstar alumni, PlayDead's Martin Anderson and Sony's VR audio experts

SO, NOW WE are ten.

Game audio has come a long way since the first Develop Conference arrived in buzzing Brighton. Two hardware generations, the explosion of handheld gaming power, a sea-change in publishing and now the alluring frontier of a brave new world called virtual reality.

It's been a decade that's seen us transmogrify in the eyes of our linear post-production cousins, from poor relation to exciting, vibrant new kid on the block, as evidenced by historic delegate lists.

Year-on-year, the Develop Conference has provided a platform for a myriad of audio creatives and programmers to help evangelise and advance the cause of high quality music, sound and dialogue for games. From *Halo* maestro Marty O'Donnell's rallying keynote in the first year to Sony's audio chief Garry Taylor's vision statement in 2014. And who could have guessed that within a decade O'Donnell would have created video game music with Sir Paul McCartney, or that Taylor would have announced a PS4 SDK with an inline mastering processor?

Andy, Ali, Susan and Owain at event organiser Tandem Events surely deserve a noisy round of applause for recognising the importance of audio right from the outset. And a massive thanks to everyone who has ever attended and contributed to the audio track – whether a scheduled speaker or open mic session participant – you have engendered a strong sense of community and fostered a rare and precious generosity of spirit in the dissemination of ideas, advice, lessons learned and future visions.

Some of the tech case studies and tools development sessions we've hosted have been fascinating, even mind-blowing. And it's clearly important to talk about planning, budgets and schedules. But for me personally, perhaps the greatest value of joining this annual collegiate exploration lies in those moments of pure inspiration regarding the creative use of sound design and music score – from movie guru Paul Moore, to the acclaimed Chinese Room.

THE SOUND OF 2015

This year promises both in-houser and freelancer alike a smorgasbord of varied and exciting sessions. We've got another stellar speaker line-up which, among others, includes Rockstar alumni, best of breed freelancers, Sony's VR audio pioneers, Side's director of operations, PlayDead's audio auteur, and the winner of last year's Develop Award for Creative Contribution: Audio, Stafford Bawler.

Their discussions will cover the future of freelancing, planning massive triple-A audio productions, sound and music for VR, dialogue best practice, melding audio into gameplay and game mechanics, and producing world-class foley.

It's an exciting time for audio in games, right? Just think: it's only taken three or four decades to get us from sid-chip to symphony, and from figurative to dramatic sound. Compared with the history of movies that's actually not bad, and arguably, we can now have all the sound we want – although as a wise person once said to me, "when you can have all the sound and music you want, then you have to think about what to leave out…"

As technology issues and barriers become less dominant, surely our job becomes more about creativity and that crucial key differentiator: the power of ideas. As we peer into the future at another Develop Conference audio track, that's what really makes me smile.

It's an absolute honour to chair the day's proceedings again and I sincerely hope I'll run into you in Brighton this year.

'Happy Birthday', Develop Conference. ■

The audio track takes place on Thursday July 16th 2015 – please visit ***www.developconference.com*** *for full programme details and join the conversation on Twitter via* ***@developconf*** *or Facebook via* ***facebook.com/DevelopConference***

John Broomhall is a game audio specialist creating and directing music, sound and dialogue.
www.johnbroomhall.co.uk

MADE WITH MARMALADE

Native speaker

Marmalade's Ivan Beliy on why the cross-platform tool provider is now offering support for Google's Native Client

Software engineer Ivan Beliy (above) says Marmalade support for Google Native Client opens up a range of browser-enabled platforms to developers

GOOGLE'S NATIVE CLIENT is described by the company as a sandbox for running compiled C and C++ code in the browser efficiently and securely, independent of the user's operating system. This, Google says, brings the performance and low-level control of native code to modern web browsers, without sacrificing the security and portability of the web.

For its part, Google is supporting developers by building and maintaining GCC and LLVM-based tool chains for developers, and is actively working on improving the open-source projects. It's also adding features to the browser around graphics, audio and device inputs.

Cross-platform tool provider Marmalade has now added its own support for Native Client, working closely with the teams at Google and Intel to deliver such support for x86-powered devices.

Marmalade software engineer Ivan Beliy says that despite the popularity of mobile devices, other browser-enabled stationary devices such as laptops and desktop computers are still the most popular ways to access to content. It should also be noted that browsers offer a unified platform that will work regardless of a machine's architecture or its operating system, including on mobile.

"The Google Chrome browser is available on a huge range of devices including PC, Mac, Linux and Chrome OS-based affordable laptops: Chromebooks," he states.

"In addition, web technologies are becoming more important especially as we strive for high performance applications through the web experience. There is a constant demand to target browsers, there is an application market and millions of potential customers, so it felt like a natural addition to the comprehensive list of platforms that Marmalade supports."

> ***"With Marmalade, mobile and Chrome dev are not mutually exclusive, they are complementary."***
>
> Ivan Beliy, Marmalade

Though Marmalade already has Chrome browser support, by adding NaCL support into Marmalade, Beliy says existing apps can reach a much broader market on multi-form factor devices with little modification. Google's Native Client also offers one of the most mature ways for developers to compile C++ into web-oriented code.

"Specific runtime environments introduce overhead – they all do – but Marmalade's is really small compared to other solutions," says Beliy. "Code is compiled into CPU instructions and users can count on close to native levels of performance. This has always been important, no matter how fast modern CPUs are. On the other hand we deal with web tech which means apps will be available wherever you can get Chrome installed."

Using the Marmalade SDK technology, developers can of course target multiple platforms, and transfer their games from mobile to NaCl and vice-versa. Users just need to recompile their code for Native client and their game will be near ready for release.

Beliy notes that, though there will always be platform adaptations to be made, business logic and graphics code will work with no changes required, thanks to its single codebase.

"With Marmalade, mobile and Chrome development are not mutually exclusive, they are complementary," he explains. "And if your game performs well using browser technology it will open up new markets for you from mobile and desktop to Digital TVs.

"It's just like any other device. The Marmalade SDK reduces the difference and required overhead to target Chrome browsers as well as mobile. There is no need to write NaCl specific code to operate with media resources, controls or file system." ■

Why Marmalade matters
Using cross-platform tool Marmalade means developers do not need to write Native Client specific code to operate with media resources, controls or file systems.
www.madewithmarmalade.com

UNREAL DIARIES

Using modern research to help humanity

Presentation and judging from the Big Data VR Challenge to culminate at Develop: Brighton

Epic and the Wellcome Trust hope VR gaming can be used as a unique method of manipulating and interrogating important scientific data

> ***"The games industry has a unique ability to manage, manipulate and present huge amounts of data."***
>
> Mike Gamble, Epic Games

THE BIG DATA VR Challenge, organised by Epic Games and the Wellcome Trust, seeks to harness the skills of the games industry and emerging VR community to find new ways to manipulate and interrogate huge data sets generated by modern science studies.

Epic and Wellcome have brought together an international line-up of VR developers and visualisation specialists to address three prominent research initiatives: Cambridge University's Casebooks Project, the University of Bristol's ALSPAC Children of the 90s study, and the Sanger Institute's Genome Browser.

A prize of $20,000 will be awarded to the best concept which will be demonstrated, judged and announced at the Develop: Brighton conference in July.

The Casebooks Project is creating a digital edition of one of the largest surviving sets of medical records in history – 80,000 consultations recorded by Simon Forman and Richard Napier, two sixteenth and seventeenth century physician-astrologers. Teams in this challenge are Skip the Intro from The Netherlands and Soluis of Scotland.

ALSPAC Children of the 90s is a world-leading birth cohort study that recruited more than 14,000 pregnant women between April 1991 and December 1992. The children arising from those pregnancies, and their partners, have been followed up intensively over two decades, resulting in huge amount of data captured. The bright minds of England's LumaPie and Australia's Opaque Multimedia are taking on this study.

The Genome Browser at the Sanger Institute, Cambridge, is one of the widely used genome browsers amongst researchers; yet interpreting the displayed data remains challenging. It is hoped that new opportunities will emerge for genome scientists by taking advantage of VR technology provided by Canadian duo Pi and Power and British studio Hammerhead VR.

"The games industry has a unique ability to manage, manipulate and effectively present huge amounts of data, and that skill could potentially unlock a massive road block that has been confounding the science community for some time," said Epic Games European territory manager Mike Gamble.

"This Challenge, although relatively humble at this stage, could produce the tools required to grapple with the digital mountains of data that currently reside around the world today." ■

UPCOMING EPIC ATTENDED EVENTS

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DEVELOP'S TOP TIPS:

GAME DESIGN FOR WEARABLES

With the Apple Watch and more on the market, we ask devs how you create titles for wearable devices

1. Stop thinking about the device as a second screen, but be mindful of the player's usage patterns when designing your game. Consider what drives their interactions and also the pace and rhythm of those sessions.

Sylvain Cornillon, CTO of Spy Watch dev Bossa Studios

2. Moving from mobile to the smartwatch platform is a seismic shift in terms of game design. It's critical to have a keen understanding of how people use devices like Apple Watch as part of their lives. Design for gratifying five to 15-second game sessions, which serve as the building blocks for a long-term experience.

Aki Jarvilehto, CEO of Runeblade creator Everywear Games

3. Make software that has very short interaction times – two seconds or less. Not only is the platform built for that, but it will need to compete with other apps on that platform. Only give information to the user that they absolutely need. The Apple Watch is built around parsing notifications. It can be easy to overwhelm the user and force them to mute your apps notifications.

Rob Mackenzie, designer, Bossa Studios

4. Start by thinking: How can we get the player in a 15-minute game session to complete a meaningful action in ten seconds? Then think: How do they perform that action using the small screen and digital crown?

Paul Virapen, CEO of Cupcake Dungeon studio WearGA

5. Glance screens and Notifications make up most of your interactions with the Apple Watch, which means interactions will be often but in quick bursts. Make sure players have the information they need through Glance screens and Notifications so they don't have to keep opening the actual app.

Leo Brennan, producer, Bossa Studios

6. Try the real thing. You will never know if your idea works until you actually try it. The experience on the Apple Watch is fundamentally different from what you see in the simulator.

Daniel Gallagher, freelance software developer

7. Graphics should be large and high contrast, and much more zoomed in than usual to avoid the images feeling too distant. Be ready to optimise in ways that extend battery life, such as limiting use of bright colors across the entire screen. Most of all, have fun.

Matt Bozon, creative director at Wayforward Technologies and designer of Watch Quest

8. Eyewear and wrist-worn devices are the most important 'real estates' on the human body for wearable computing. I'm sure we will see plenty of other devices competing for their best use.

Imre Jele, co-founder, Bossa Studios

UNITY FOCUS

Damned if you don't

Rogue Factor explains why it switched to Unity 5 for Mordheim: City of the Damned

BACK IN NOVEMBER, Rogue Factor released the Early Access version of its most ambitious project yet – *Mordheim: City of the Damned*, a dark, procedurally generated adventure set in the *Warhammer* universe.

Drawing inspiration from the tabletop origins of *Warhammer*, the team dreamed of creating a turn-based tactical game where no two matches are the same, designing a complex series of map and character generators that offer a fresh take on the genre.

"Even though we are a small team, we wanted to make a game with a long lifecycle," lead programmer and production director Edgar Parente explains. "We developed a procedurally generated map system. It's not overly complicated, but ends up giving very satisfying results.

Procedural generation even extends to the characters, made up of various combinations of body parts. In order to achieve the vision for *Mordheim*, the team had to find tech that could handle it.

"We wanted to use an engine with the ability to produce our project quickly, and efficiently," says Parente. "As a small indie studio, most of us have to wear many hats and become proficient in many aspects of the development pipeline.

"Using a well-built engine would help us minimise the learning curve associated with using a new engine and leave all internal engine development behind to focus on the game."

Rogue Factor chose Unity for its easy-to-learn interface and development pipeline, as well as the opportunities for multi-platform development and the support of the community.

"That is not to say we didn't have a steep hill ahead of us when we started and with all the features we wanted to implement," Parente points out, "but we were able to get something up and running much faster than we would have otherwise, or with another engine."

> ***"Even though we are a small team, we wanted to make a game with a long lifecyle."***
>
> Edgar Parente, Rogue Factor

When Unity 5 became available, the new engine allowed the team to revamp some of its systems. But while the tech's creator was shouting from the rooftops about the new physically-based rendering features, Rogue Factor found it was most impressed by something else.

"An unpublicised feature of Unity 5 was the new physics-based cloth system," says Parente. "Unity previously had a cloth system, but it was quite awkward to use, so we had to build our own one. Now with Unity 5 we switched back to their system.

"Our development was also sped up with the new editor. Not only are we no longer running out of memory since the editor is now a 64-bit application, but saving our scenes and assets takes about 30 seconds, when it used to take 20 minutes.

"With the old editor, we used to crash out of memory several times a day. Now with the 64-bit editor we can work without issues. Being able to save our assets and scenes quickly makes it so we can iterate much faster, and actually fix problems as we find them."

However, the procedurally generated nature of *Mordheim* made the transition trickier than expected.

While other devs have been able to switch their projects to Unity 5 in a matter of days, Rogue Factor took three weeks. This is largely due to the game's ambitious scope.

But Parente says Unity has included several features that makes it relatively painless for studios to upgrade: "They will parse your code and make corrections so you don't have to. All our scripts worked very easily, and the runtime optimisations alone are worth the upgrade." ■

Mordheim: City of the Damned
Developer: Rogue Factor
Publisher: Focus Home Interactive
Platform: PC
www.rogue-factor.com

Above: Rogue Factor's lead programmer and production director Edgar Parente

Main: Mordheim uses procedural generation to create new challenges for its players

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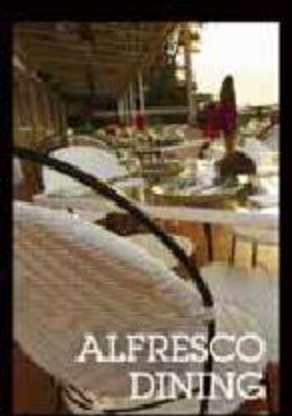

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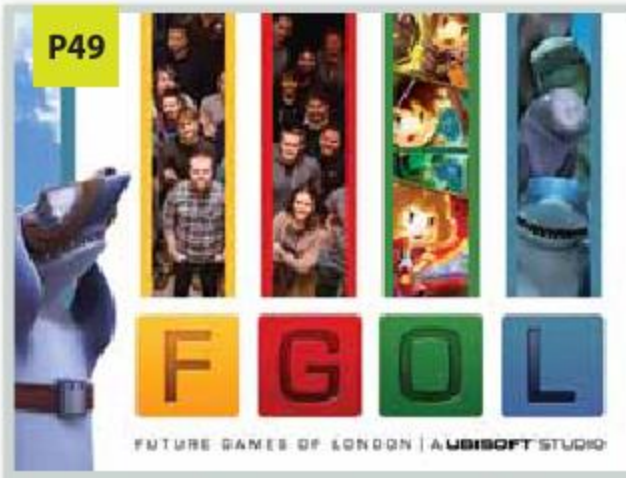

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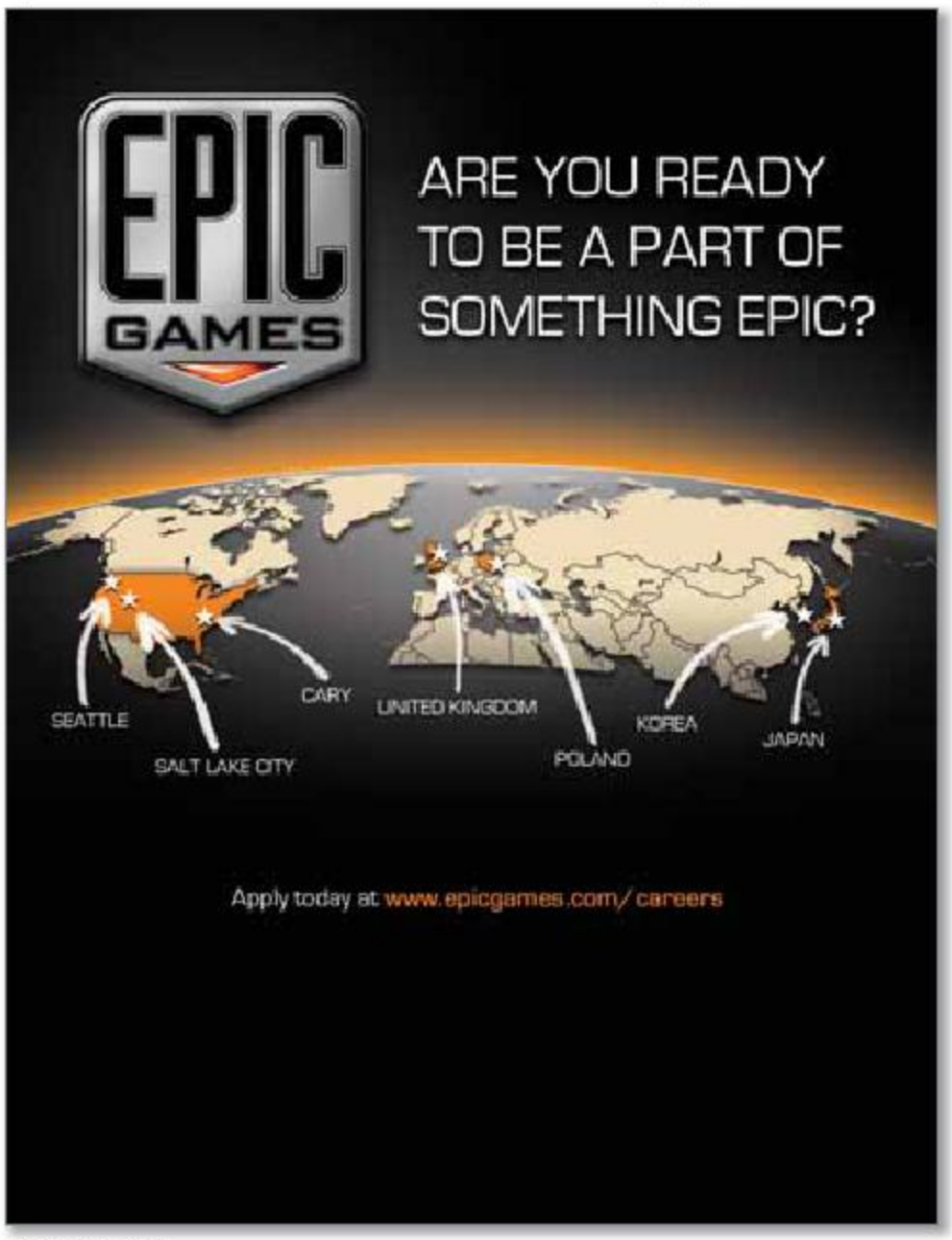
FOUNDED NEARLY 20 years ago in 1996, OMUK is a London-based production company that specialises services in dialogue casting and recording. Its offerings also expand areas such as getting involved in writing, editorial, character and story development, performance capture and tools.

> ***"Everyone in recording can see and hear what it will be like in-game at the point of creation."***
> Mark Estdale, OMUK

OMUK CEO Mark Estdale says the firm transforms its recording studio into a fully 'game immersive recording environment' as it plots to get the most out of acting talent and provide game's with crisp and clear audio. The firm's casting services include 'to script' recorded and filmed casting sessions, plus access to a database of

Epic www.epicgames.com/careers



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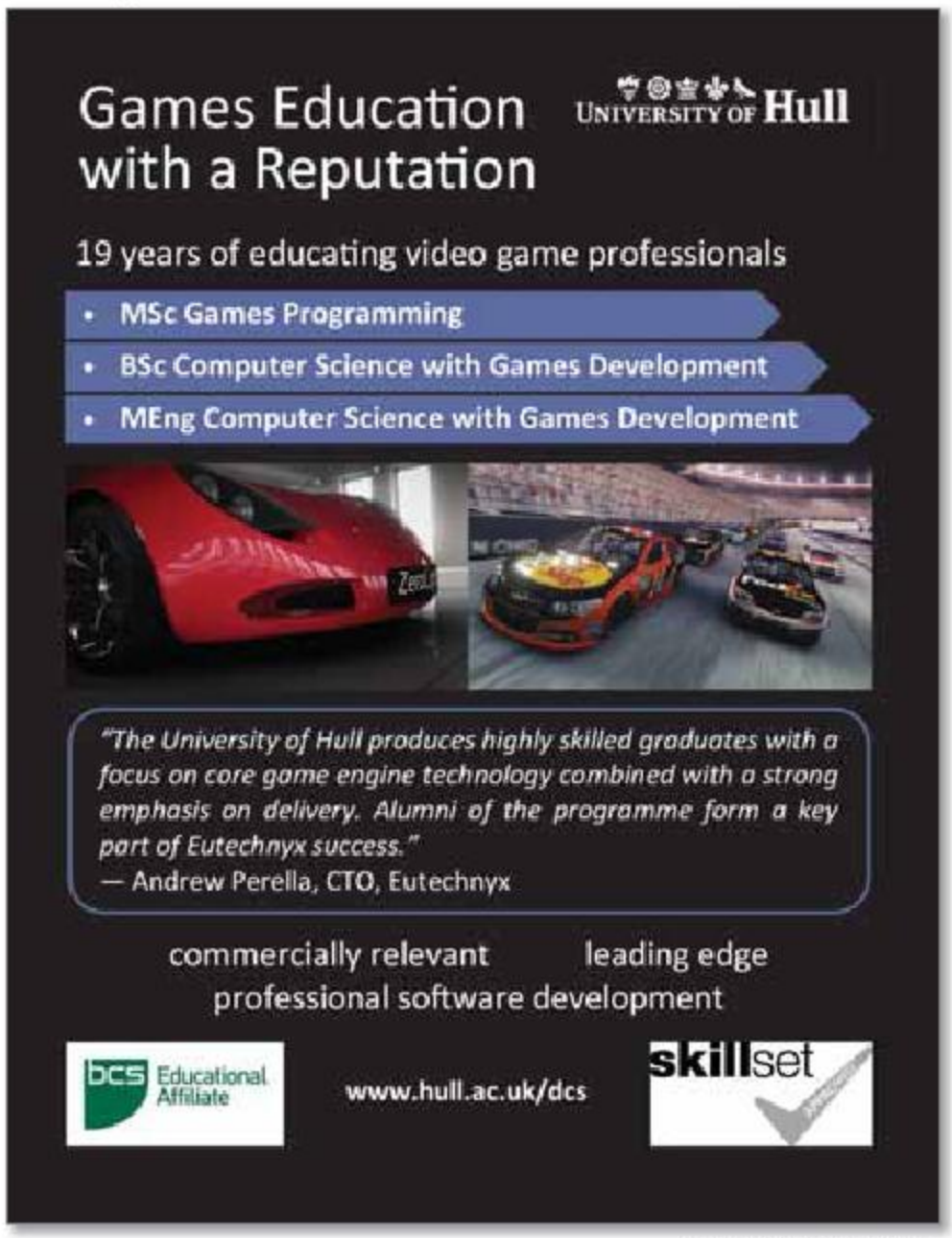
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more than 12,000 specifically recorded voice samples.

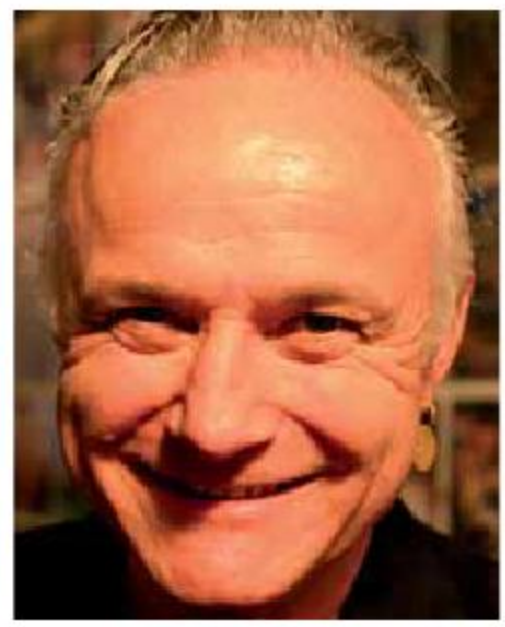
He goes on to say that voice acting is crucial for games, particularly in modern titles where quality audio is crucial, as it creates a sense of immersion, which could easily be broken with a bad recording.

"Get it wrong at your peril, as the curse of NPC 1701 will get you," he says.

He adds: "Recording at OMUK is like being on a film set for games. Everything about the recording studios has been redesigned ground up for our work with games: the physical space, the technology and the recording methodology. Actors perform immersed in the game world, fully in context.

"Everyone in session can see and hear what the performance will be like in-game at the very point of creation."

The firm has provided services for hundreds of games, not least including *The Witcher*, *TimeSplitters*, *Tales of Monkey Island*, *The Wolf Among Us*, *Driver: San Francisco* and *Silent Hill: Origins*. It's work on *Broken Sword 5: The Serpent's Curse* (*pictured left*) meanwhile won it the 2014 Best Voice Acting AGGIE Award. Revolution's Kickstarter-funded title was also the first UK title to use OMUK's 'game immersive recording environment' and Creative Dialogue Tools. Estdale says these were designed to make the production process for game dialogue more intuitive, easier and accurate.



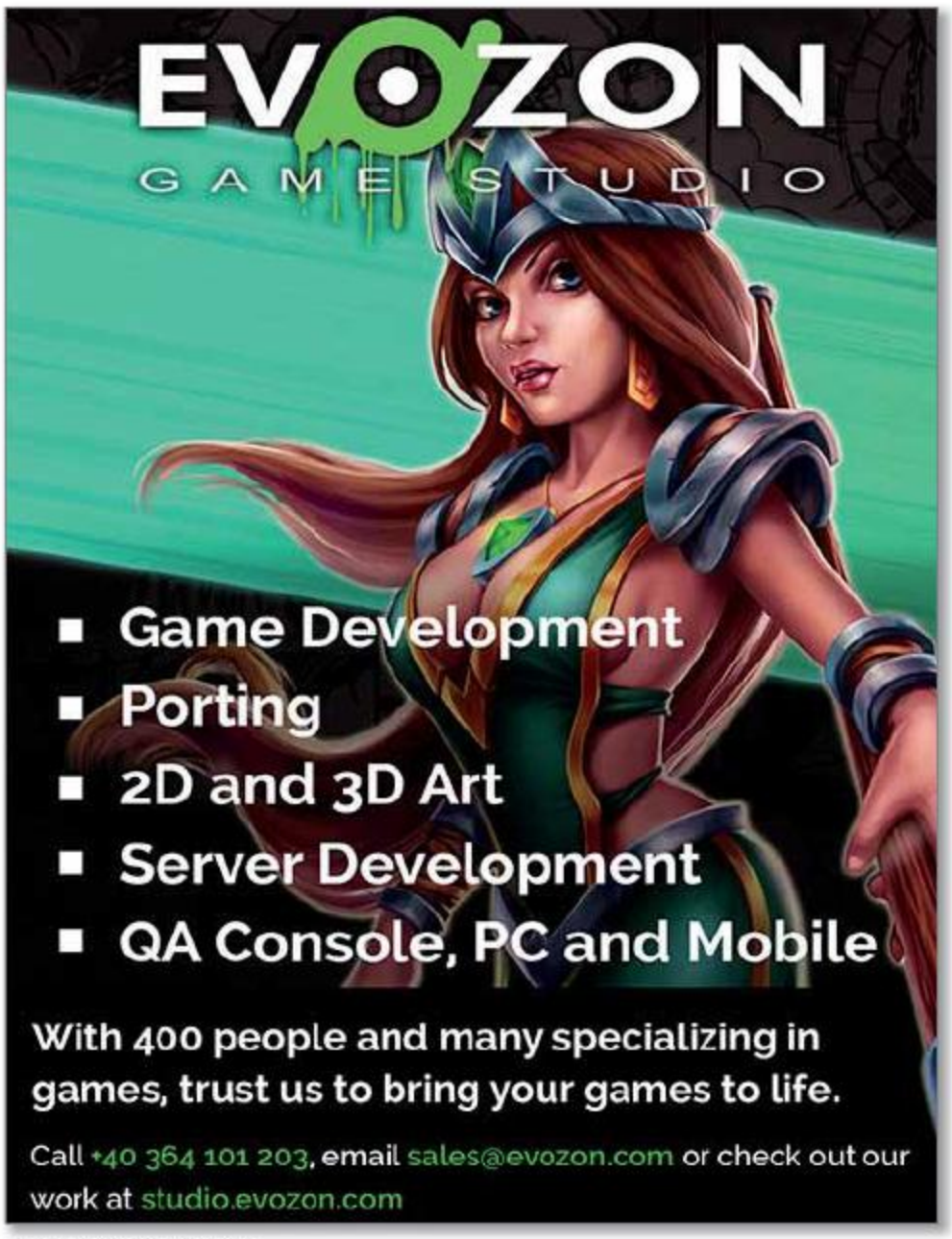
> ***"We're bringing the 'game immersive voice recording' approach to localisation."***
> Mark Estdale, OMUK

Currently, the team is working on new titles: Telltale's *Game of Thrones*, *Block 'n' Load* and *Trine 3* (*pictured above*).

On top of the current array of services that the company offers, Estdale says OMUK plans to expand its business further.

"Currently we're working on new studio technology for performance capture and we're bringing the 'game immersive voice recording' approach to localisation with a suite of software tools imaginatively called Creative Localisation Tools," he says. ■

Evozon Game Studio studio.evozon.com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TOOLS SPOTLIGHT

This month: **PD Howler 9.6**

PD Howler
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W: www.thebest3d.com

PD HOWLER IS a paint and animation programme for Windows, that was originally designed while its creator Dan Ritchie worked in games development for the Atari Jaguar.

The toolkit was built to complement a 3D artist's regular suite of tools, allowing them to load, process, preview, edit and save out single frames, image sequences, video clips and animations.

The software can be used to apply special effects filters through a timeline, or directly on a still frame, while a 3D designer tool lets the artist create landscapes of mountains and canyons, for example, with shadows, erosion, seidments and ambient occlusion.

It also includes purpose-built tools for game and media artists, such as alpha channel pre-multiply correction, exposure sheet for lip sync work, frame sequencing, working with sprite sheets and more.

"There's an open SDK," says PD Howler business development man Philip Staiger. "If you write code in VB, Delphi, C# and a bunch of other development systems, you can make your code 'communicate' with PD Howler and use that to exchange images, brushes, animation frames and more between the two.

"A number of developers have done so adding some interesting capabilities to Project Dogwaffle and Howler over the years, many available for free. One developer even added a front-end for Lua scripting, to implement your own filters, which is a great way to experiment with your new algorithmic ideas before you compile them into optimised code."

Though now in version 9.6, PD Howler only made its debut on Steam in March this year, and is currently available to purchase for £44.99. VP of engineering Dan Ritchie says the latest version is more attractive to indie developers than previous iterations perhaps were, making it more applicable for a Steam release.

Staiger explains: "What really helped make the push was that some of our existing users kept suggesting we should offer PD Howler on Steam, that it would be good for many indie developers there that needed something like PD Howler. I think that's what finally helped us make the decision to not just think about it, but actually get it there."

PD Howler complements a 3D artist's suite of tools and can be used to apply special effects filters

> ***"Our users suggested we offer PD Howler on Steam, as it would be good for indies."***
> Philip Staiger, PDH

The software's creators are currently working on making its interface more tablet-friendly, and the team also aims to make colour theme support more powerful than it is at present.■

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STUDIO SPOTLIGHT

This month: **Future Games of London**

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E: jobs@fgol.co.uk
W: futuregamesoflondon.com
FB: futuregamesoflondon
TW: @FGOLnews

FGOL's Valentina Marchetti (above) says China represents its biggest market for daily downloads

Tell us about your company for those who may not be familiar with what you do.

Valentina Marchetti, HR and marketing manager: Future Games of London started out five years ago as a small independent studio, and became part of the Ubisoft family two years ago. We make original games for smartphones, tablets, and TVs. We're best known for the *Hungry Shark* series, which has racked up a whopping 200m downloads.

What was the biggest development for FGOL in 2014?

Marchetti: Last year was a big step up for our distribution, helped in part by joining Ubisoft. We took *Hungry Shark Evolution* to new markets and platforms: launching on Windows Phone 8, Amazon Fire TV, Google's Android TV – all contributing to our biggest Shark Week ever in August last year. For those that don't know, Shark Week is a TV event run by Discovery Channel in the US for the last 27 years with around 22m viewers – it's kind of a big deal for shark lovers.

We also launched localised versions in Asia, working with Nexon and Kakao Talk in Korea and OurPalm in China. China really blew the doors off, we now have more daily downloads in China than the rest of the world put together.

What are your goals and priorities for 2015?

Marchetti: Well, we are giving a bit more love to *Hungry Shark* this summer – it's Shark Week time after all. We are partnering with Oceana and the Discovery Channel for the third year in a row, and we have planned a packed calendar of social events and offers. We cannot wait for the Summer of the Shark to kick in.

How do you make sure your games stand out in the extremely crowded mobile marketplace?

Marchetti: We make games that are fun, polished, easy to get into, addictive, amusing, quirky, and also have great graphics. We also work very hard to listen to our community and player feedback – this is what drives our updates and helps us to define our marketing campaigns.

What are the biggest lessons you've learned in the free-to-play space and how will you apply these to future games?

Marchetti: The longevity of mobile free-to-play games has really surprised us. *Hungry Shark Evolution* was released in October 2012 and is still breaking monthly sales records now in April 2015.

Back in 2011 and 2012, we were launching a new game every few months. Now we have a game that has been going strong for years with no sign of slowing down. That's been a big change for us, moving from 'big bang' launches to continuous improvement and responding to customer feedback.

It also means that it now makes sense to make a much bigger investment in a mobile game if you know the lifetime of the product on the market can be measured in years instead of months.

> ***"We're best known for the Hungry Shark series, which has racked up a whopping 200m downloads."***
>
> Valentina Marchetti, FGOL

How do you work with other studios within Ubisoft? What support do you get or give?

Marchetti: I'd say that's an ongoing relation. We have regular calls with them and we tend to share resources and knowledge. So far, it has worked for the best.

However, don't forget that our industry is still quite a small one – we do talk to other studios as well, especially with those based in the UK and London.

Are you planning to expand or recruit for your team at all? What are you looking for?

Marchetti: Yes, we are. While we feel the studio is approaching the right size for now at around 50 people, we're still on the lookout for talent in programming roles, graphic design and QA. We are always happy to review interesting candidates for any position.

Why should people want to apply? What's different about your studio compared to others?

Marchetti: It truly is non-stop from the get-go. There's always some new and exciting content to work on, and the only limit is how far your creativity can take you.

Tell us something unique about your studio that no one else might know.

Marchetti: We have more sharks at the studio than we do people. They are half-hidden everywhere, sometimes you don't even realise that you are staring at one. ■

GAME DEV FAMILY TREE

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CAMBRIDGE UNIVERSITY

The venerable university has long supplied the Cambridge games development scene with fresh talent, including the founders of Frontier and Jagex

David Braben and Ian Bell met at Cambridge University and teamed up to develop the first Elite game

DAVID BRABEN AND IAN BELL
1983 - 1984
Notable Games:
Elite

Following the success of Elite, David Braben went on to found Frontier Developments

FRONTIER DEVELOPMENTS
1994 - Present
Notable Games:
Frontier: Elite II
Zoo Tycoon
Elite Dangerous

Andrew Gower co-founded Jagex with his brothers Paul and Ian, after creating RuneScape during his time at the University of Cambridge

JAGEX GAME STUDIO
2001 - Present
Notable Games:
RuneScape
8Realms
Carnage Racing

GUERRILLA CAMBRIDGE
(Sony Cambridge Studio)
1997 - Present
Notable Games:
Killzone: Mercenary
8Realms
Carnage Racing

Numerous devs have moved between these two studios over the years, including former Sony Cambridge programmer and current Ninja Theory director, Wil Driver

NINJA THEORY
2000 - Present
Notable Games:
Kung Fu Chaos
Heavenly Sword
DmC: Devil May Cry

Inkle's development director and creative director both worked at Sony Cambridge before forming their own studio

INKLE
2011 - Present
Notable Games:
80 Days
Sorcery!
Frankenstein

Concept artist Ben Andrews, who worked on The Chinese Room's first three games, left the studio to join Inertia in 2013

THE CHINESE ROOM
2007 - Present
Notable Games:
Dear Esther
Amnesia: A Machine for Pigs
Everybody's Gone to the Rapture

Ex-Frontier devs Oli De-Vine and Phil Duncan struck out on their own to form their own studio

GHOST TOWN GAMES
2014 - Present
Notable Games:
Overcooked

Former Inertia programmer Thomas Linthe and concept artist Ben Andrews joined Frontier in 2014

INERTIA GAME STUDIOS
2003 - Present
Notable Games:
Escape From Darkmoor Manor
Mahjong: The Secret Garden
Fishing World

NEXT MONTH:
Brighton

THIS MONTH:
Cambridge

Lee Bradley investigates the close links between the famous studios of Cambridge's games development hub

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Our in-depth recruitment guide to who's hiring and what they are looking for returns with comprehensive profiles on a trio of leading firms. From triple-A to mobile games, there's something here for any hopeful job-seeker

THE COMPANIES

MASSIVE ENTERTAINMENT | A UBISOFT STUDIO

04-05

amiqus

06-07

STICK SPORTS

08-09

> **There are always vacancies just waiting for the hottest new talent to apply.**

Normally, we concentrate our recruitment specials and features around the New Year. After all, that's when thousands of people are considering the 12 months ahead and craving the thrill of fresh challenges.

But it would be remiss of us if we only turned our attention to studios and companies who are recruiting once a year. There's always room for expansion and growing your workforce, which means there are always vacancies just waiting for the hottest new talent to apply.

We have partly addressed this ongoing need for new recruits with our Develop Jobs section, but last year we introduced Develop Jobs Extra, a special supplement profiling specific companies and their recruitment needs. This month, Develop Jobs Extra returns as a special bonus magazine-within-a-magazine.

For our second who's who of hiring, we speak to Ubisoft's Massive Entertainment, the Swedish behemoth behind *Tom Clancy's The Division*, and Stick Sports, a highly successful mobile developer known for its cricket and tennis titles. We also have a special two-page presentation from leading recruitment agency Amiqus on how it is fullfilling the needs of those seeking new talent.

MASSIVE

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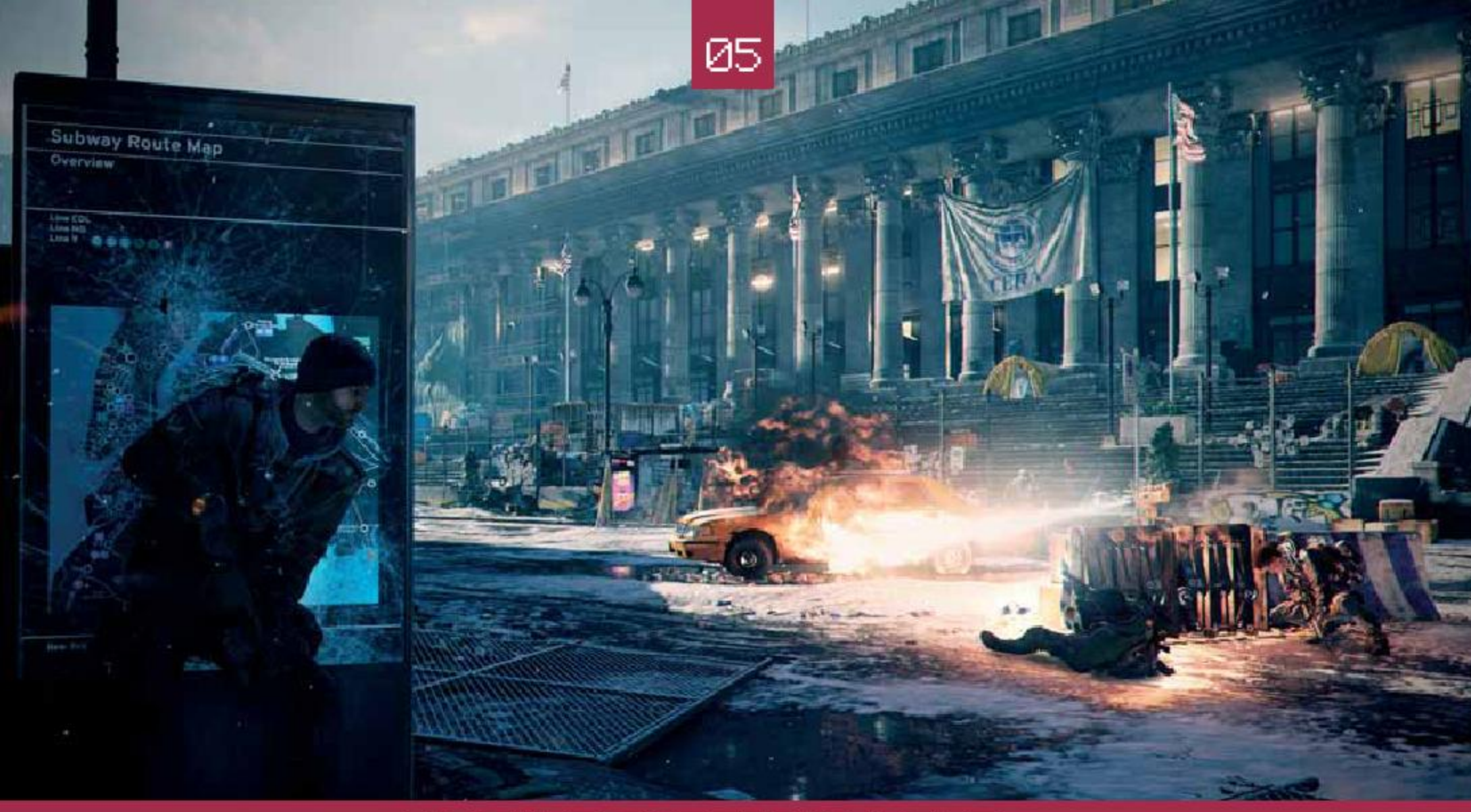

MASSIVE ENTERTAINMENT

Elena-Veronica Popescu (above) is the talent acquisition manager at Massive

"We are always looking for passionate and creative people.

TEL:	+46 40 600 10 00
EMAIL:	careers@massive.se
WEBSITE:	www.massive.se
LINKED IN:	www.linkedin.com/company/massive---a-ubisoft-studio

CURRENTLY HIRING: We are always keen on meeting creative and passionate candidates so don't be afraid to approach us if you're interested in a job. Right now our focus is on hiring talent in level design, writing and specialised programming.

Massive Entertainment is an award-winning studio working on high-profile games and technology used by the entire Ubisoft group. Current game projects include triple-A blockbuster title *Tom Clancy's The Division* and globally renowned *Just Dance Now*. Besides games, we also have several technology and service projects like Snowdrop, UbiBluestar and Uplay for PC.

The diversity of our projects is reflected in our studio with people from more than 30 countries, composing a third of all employees at Massive. To get the most of this, we strive to maintain a meritocratic culture where the best idea wins, no matter who came up with it. And since we are gamers ourselves, we refuse to compromise when it comes to the players' best interests.

We are always looking for passionate and creative people, whether if it's for current roles or just to build connections for the future. In the coming months, the focus will be on adding more talent in a few key areas so we are keeping an eye out for senior level designers, senior writers and analytics specialists, as well as specialised coders (AI, gameplay, animation, audio). We are also interested in hearing from experienced creative directors, narrative directors and animation directors.

Our studio is located in downtown Malmö, Sweden. It takes up all six floors of a highly iconic city building that was re-conditioned according to our specifications. It not only has plenty of space for our teams, but also custom-built sound studios and a user research lab.

We take great pride in our culture of open communication and the openness of all the people working here. Massive employees are encouraged to take initiatives they feel passionate about, something that also extends beyond gaming. As a studio, we believe in giving back to the community, so we take social responsibility serious; not only on a local level, but also globally. Teamwork is one of the most important aspects of our culture – we create games together.

Besides amazing projects and colleagues, we also have several benefits for our employees. We offer a great work/life balance, free breakfast and coffee, soft drinks, private healthcare and pension plan, life insurance, discounts at many local businesses (games, fitness centres, hotels, banking and much more), language classes, gym memberships, free Uplay games, paid vacation days in advance for the first year of employment, relocation allowance and support for those moving to Sweden, and a lot of events and parties with the entire studio.

Many of the roles we are recruiting for require portfolios, particularly within arts and design. As the portfolio is one of the first impressions we get, it is well worth putting some extra love into this. Also consider putting extra time on your resume; this is you how you present yourself, so list everything that is relevant for the role. When recruiting, we often use tests, so be prepared for that.

We not only work with games – we work with people. We want to build long-term teams and develop people as individuals. When meeting us in an interview, it's good to be honest and authentic, there is nothing we admire more than this. This process is about you finding the job of your dreams and us finding the perfect candidate. ■

amiqus

A fresh perspective on games recruitment.

We started Amiqus back in 2000 with a mission to take our love of the games industry and combine it with our experience in recruitment to help more people find the right job, at the right time. Building relationships, creating networks and supporting industry growth is what we're all about.

15 years on and we're pretty chuffed that we're in a position to connect skilled and passionate candidates with the right studios in the gaming industry who share their values and vision.

We love what we do and we work super hard at it, recruiting internationally for roles right across the industry at all levels. Get social with us at **amiqus.com**, follow **@AmiqusGamesJobs** for live job updates and **@WeAreAmiqus** for all our games industry news.

What have the major changes in the games jobs market been this year?
Attracting talented people into the games industry continues to be a priority for studios in 2015. The market has been influenced by the rise of the VR headset, set for launch in early 2016. This tech has fuelled an increase in the number of roles within VR and augmented reality projects.

Studios internationally continue to balance their teams through attraction of more women into the industry. Even though over half of the player community is female, women make up less than 20% of the current workforce in Games, so a real challenge in hiring.

What areas do you expect to grow by the end of the year, and how can job-seekers make the most of this?
Hot skill areas are still mainly in code for both mobile and console studios. There is an on-going demand for C++ and C# developers across all code disciplines with a growing focus on cloud services experience, AWS, Azure etc.

Job-seekers should always aim to keep their skills current with the latest releases and stay as up to date as possible either with your employer or making a move within the industry to get exposure to new skills which can really enrich your career.

What are the best opportunities in the UK?

The UK has always been a hotbed of creativity and home to many indie devs. Typically these studios need people with transferrable skills and the enthusiasm to do more than the job they are being hired to do. Small studios need everyone to work together to deliver projects which often means getting stuck in to whatever needs doing. Larger studios sometimes look for more specialised candidates for their teams however, so consider what type of studio you really want to work in longer term and tailor your career choices.

What should job-seekers consider when looking at opportunities abroad?

The more flexible you can be with your location the more opportunities you will have access to. It's a good idea to research practicalities like cost of living and transport right up front so you can match your lifestyle needs. Studios will likely use Skype interviews too so brush up on your video interviewing skills.

How can applicants improve their chances of getting hired? What are studios looking for?

So many companies want people to hit the ground running so experience and skills do count for a lot however team-fit can be even more important. Studios will almost never hire a skilled person if they don't think they will fit with the values or behaviours of the team. Companies look for candidates who come across well with energy, enthusiasm, communication skills and humility. You must show interest and passion for the studio you're applying to. Make it clear you really want their job – not just any job.

What makes a great CV/Portfolio?

Try to make it as easy as possible for the studio to see what you can do. Creatives need a solid portfolio and if you have 10 year old work next to new stuff then provide comments about what you were looking to achieve at the time and your progress since. For coders, you can include examples of your work and detail your responsibilities to show what you personally produced to benefit the project.

For a CV be wary of TLDR (too long didn't read) and get the balance of showing your skills while keeping strongest focus on your most recent employment. CVs between 2-4 pages are about right.

Fed up with analysts and accountants taking over the creative process?

Want to work in an environment where your talent and initiative is rewarded?

The user experience is at the core of all Stick Sports games. We focus on creating fun and addictive skill mechanics, then adding simple and fast-flowing gameplay. We've enjoyed great success with Stick Cricket, a cult classic in all cricket-playing nations, and Stick Tennis – topping the charts in 120 countries.

We are now looking to build on our 10-man studio to expand our portfolio of games. Based in Shoreditch, with views over the City of London, we've developed an environment conducive to nurturing radical ideas, initiative and creativity. A fresh and open-minded atmosphere, along with short project cycles and a flat decision-making structure, empowers us to create fun games for mobile and online audiences.

We're looking for two talented people to lead the creative process.

Lead Artist:

- Experienced game artist (+5 years) with solid 2D/3D Art and conception skills.
- Able to define the visual look of a game - the UI, environment, characters and animations.
- Excellent communications skills to lead other artists and freelancers, as well as designers and engineers.
- Advanced Photoshop and Adobe CS experience, with the skills to deliver high quality in-game art assets and illustrations.
- Sound knowledge of real-time technologies – shaders, lighting and rendering, with direct experience in Unity3D.
- Able to contribute to the creative direction of the studio.

Senior Developer – Mobile:

- 5 years in game development, 2 in a lead position.
- Exceptional skills in C# and solid experience developing in UNITY.
- Both iOS and Android and the use of multiple 3rd party plugins.
- Ability to define development architecture and design and write API's
- Experience with shaders, lighting and familiarity with physics engines.
- Able to contribute to the creative direction of the studio.

Send your CV and portfolio to: iwanttowork@sticksports.com

STICK SPORTS

"Simple, engaging... well worth picking up" - *Pocket Gamer*
"This is the classic cricket app, rejigged... brilliantly 5/5" - *The Sun*
"A marvellous time-sucker" - *The Guardian*
"Essential App 2012, awesome caractures 9/10" - *Wired*
"Cute graphics and surprisingly good gameplay" - *The New York Times*

STICK SPORTS

Paul Collins (above) is the managing director at Stick Sports

"We need results-oriented creatives who don't shy from trying new ideas.

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WEBSITE:	www.sticksports.com
LINKEDIN:	https://www.linkedin.com/company/stick-sports-ltd

CURRENTLY HIRING: Stick Sports is looking for talented games industry professionals to join its London team and work on its growing catalogue of sports titles, with opportunities available in development, design, 2D/3D visual art, marketing and production.

Tell us a little about your studio.
From our offices in London and Sydney, Stick Sports is an independent games developer producing online and mobile sports games for sports fans.

Our game *Stick Cricket* originally launched as a Flash game in 2004, and was designed to be easy to pick up yet difficult to master. Since then, it has gone on to record more than a billion play sessions from 100m players to become a classic. It still tops the charts today in all of the major app stores and is regularly selected by Apple and Google for promotion. As the de-facto cricket game, *Stick Cricket* has now been licenced to play on inflight entertainment systems and TV set-top boxes.

Since its initial launch, the game has spawned different versions, including a career management spin-off and a two-player mode. The game is still being developed and, in March of this year, we launched *Stick Cricket 2* to attract a whole new generation of players.

Using the same design ethos, *Stick Tennis* topped the sports charts in 120 countries and maintains a dedicated and loyal fanbase. It was recommended by the New York Times, Wired and the Telegraph. Following this success, a new *Stick Tennis* title is to be released this summer.

Other games we are currently working on include golf, motor racing and baseball, as well as updates to our online portfolio of games.

What are the perks and benefits of working at Stick Sports? Why should devs apply to for your studio?
Working at Stick Sports is all about empowerment. With a very flat decision making structure, any employee can greatly influence the creative and scope of all our games. We want people who have a passion for games and sports to actively contribute to design decisions, regardless of their role.

Without a publisher or client watching over us, we are free to test ideas and innovations, both as a development team and individually.

Maintaining a direct relationship with our customers brings benefits, too. The ability to communicate with users, especially when designing or building features, helps us understand their needs, and receiving direct feedback is very rewarding.

What are you looking for in applicants? How can they make their application stand out?
Building on the success we've enjoyed to date, we are looking for highly talented people to join the London team to work on new sports titles in our growing catalogue. We have opportunities in development, design, 2D/3D visual art, marketing and production.

We need results-oriented creatives who don't shy from questioning conventions or trying new ideas. We're looking for people who have already demonstrated skills in games development and are looking for rapid growth in a small team. We maintain a highly iterative and agile development methodology with short project lengths, resulting in direct feedback from consumers.

Make your CV stand out, make it relevant and remember a portfolio or demo gives you bonus points. ■

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